

July 16, 2021

Report to:

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cc: David Krizek

Project ID:

ACZ Project ID: L66691

Holly Beggy:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 23, 2021. This project has been assigned to ACZ's project number, L66691. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L66691. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after August 15, 2021. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Scott Habermehl has reviewed
and approved this report.



Hudbay Minerals

July 16, 2021

Project ID:

ACZ Project ID: L66691

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 16 miscellaneous samples from Hudbay Minerals on June 23, 2021. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L66691. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures. In addition the following has been noted with this specific project:

1. (B1) Specific sample / Copper, Lead have been qualified.

Target analyte detected in prep blank above the method reporting limit. Lead and Copper detected in the Prep Blank and Lab Fortified Blank, indicating trace levels of extraction fluid contamination. Samples can be re-extracted and re-digested at client discretion.

2. (N1) Copper on samples L66691-04 through -10

Copper detected in Prep Blank and LFB at nearly exact same elevated result, indicating potential extraction fluid contamination since PBS and LFB are made from same bottle. Samples can be re-digested, or re-extracted and re-digested at client discretion.

Hudbay Minerals

Project ID:

Sample ID: D2-S1

ACZ Sample ID: **L66691-01**

Date Sampled: 06/04/21 07:15

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/06/21 7:35	mfm
Total Hot Plate Digestion	M3010A ICP								07/01/21 12:23	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	5.81		*	mg/L	0.05	0.25	07/02/21 14:18	jlw
Aluminum, total (3050)	M6010D ICP	100	6050		*	mg/Kg	5	25	07/12/21 22:55	jlw
Antimony (1312)	M6020B ICP-MS	100	0.0570	B	*	mg/L	0.04	0.2	07/09/21 10:35	bsu
Antimony, total (3050)	M6020B ICP-MS	100000	1440		*	mg/Kg	40	200	07/15/21 17:05	bsu
Arsenic (1312)	M6020B ICP-MS	1	0.0205		*	mg/L	0.0002	0.001	07/08/21 17:27	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	249		*	mg/Kg	0.1	0.5	07/14/21 12:17	mfm
Cadmium (1312)	M6020B ICP-MS	100	1.27		*	mg/L	0.005	0.025	07/09/21 10:35	bsu
Cadmium, total (3050)	M6020B ICP-MS	500	325			mg/Kg	0.025	0.125	07/14/21 12:17	mfm
Calcium (1312)	M6010D ICP	1	11.6			mg/L	0.1	0.5	07/02/21 14:18	jlw
Calcium, total (3050)	M6010D ICP	100	596		*	mg/Kg	10	50	07/12/21 22:55	jlw
Copper (1312)	M6020B ICP-MS	100	28.6			mg/L	0.08	0.2	07/09/21 10:35	bsu
Copper, total (3050)	M6020B ICP-MS	100000	5760			mg/Kg	80	200	07/15/21 17:05	bsu
Iron (1312)	M6010D ICP	1	4.55		*	mg/L	0.06	0.15	07/02/21 14:18	jlw
Iron, total (3050)	M6010D ICP	100	38300		*	mg/Kg	6	15	07/12/21 22:55	jlw
Lead (1312)	M6020B ICP-MS	100	4.75		*	mg/L	0.01	0.05	07/09/21 10:35	bsu
Lead, total (3050)	M6020B ICP-MS	100000	32500			mg/Kg	10	50	07/15/21 17:05	bsu
Magnesium (1312)	M6010D ICP	1	8.16		*	mg/L	0.2	1	07/02/21 14:18	jlw
Magnesium, total (3050)	M6010D ICP	100	2070			mg/Kg	20	100	07/12/21 22:55	jlw
Manganese (1312)	M6010D ICP	1	0.353		*	mg/L	0.01	0.05	07/02/21 14:18	jlw
Manganese, total (3050)	M6010D ICP	100	78.8		*	mg/Kg	1	5	07/12/21 22:55	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 9:42	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	37600		*	ng/g	18.3	91.5	06/30/21 16:01	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/02/21 14:18	jlw
Molybdenum, total (3050)	M6010D ICP	2000	2030			mg/Kg	40	200	07/15/21 13:25	jlw
Nickel (1312)	M6020B ICP-MS	1	0.0138		*	mg/L	0.0004	0.001	07/08/21 17:27	bsu
Nickel, total (3050)	M6020B ICP-MS	500	2.13		*	mg/Kg	0.2	0.5	07/14/21 12:17	mfm
Selenium (1312)	M6020B ICP-MS	1	0.00080		*	mg/L	0.0001	0.00025	07/08/21 17:27	bsu
Selenium, total (3050)	M6020B ICP-MS	500	4.78		*	mg/Kg	0.05	0.125	07/14/21 12:17	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/08/21 17:27	bsu
Thallium, total (3050)	M6020B ICP-MS	500	0.309			mg/Kg	0.05	0.25	07/14/21 12:17	mfm
Zinc (1312)	M6010D ICP	2	92.5		*	mg/L	0.04	0.1	07/07/21 23:29	jlw
Zinc, total (3050)	M6010D ICP	500	23000			mg/Kg	10	25	07/13/21 14:04	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-S1

ACZ Sample ID: **L66691-01**

Date Sampled: 06/04/21 07:15

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.2	B	*	%	0.1	0.5	06/30/21 9:43	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	<0.1	U	*	%	0.1	0.5	06/30/21 9:43	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.3	B	*	%	0.1	0.5	06/30/21 9:43	jpb
Conductivity @25C	SM2510B									
Conductivity		1	7.59		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.4		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	3.1		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.5		*	%	0.1	0.5	06/25/21 9:00	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	3.53		*	%	0.01	0.1	06/30/21 9:36	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 8:30	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 9:26	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 9:26	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:01	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 12:00	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 12:00	jpb
Synthetic Precip. Leaching Procedure	M1312								06/29/21 20:36	gkh/zln

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-S2

ACZ Sample ID: **L66691-02**

Date Sampled: 06/04/21 07:47

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/06/21 7:35	mfm
Total Hot Plate Digestion	M3010A ICP								07/01/21 12:48	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.153	B	*	mg/L	0.05	0.25	07/02/21 14:22	jlw
Aluminum, total (3050)	M6010D ICP	100	4910		*	mg/Kg	5	25	07/12/21 22:59	jlw
Antimony (1312)	M6020B ICP-MS	1	0.00667		*	mg/L	0.0004	0.002	07/08/21 17:28	bsu
Antimony, total (3050)	M6020B ICP-MS	20000	350		*	mg/Kg	8	40	07/15/21 17:07	bsu
Arsenic (1312)	M6020B ICP-MS	1	0.00116		*	mg/L	0.0002	0.001	07/08/21 17:28	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	76.9		*	mg/Kg	0.1	0.5	07/14/21 12:19	mfm
Cadmium (1312)	M6020B ICP-MS	1	0.0272		*	mg/L	0.00005	0.00025	07/08/21 17:28	bsu
Cadmium, total (3050)	M6020B ICP-MS	500	40.1			mg/Kg	0.025	0.125	07/14/21 12:19	mfm
Calcium (1312)	M6010D ICP	1	6.79			mg/L	0.1	0.5	07/02/21 14:22	jlw
Calcium, total (3050)	M6010D ICP	100	819		*	mg/Kg	10	50	07/12/21 22:59	jlw
Copper (1312)	M6020B ICP-MS	10	1.16			mg/L	0.008	0.02	07/09/21 10:37	bsu
Copper, total (3050)	M6020B ICP-MS	500	1410		*	mg/Kg	0.4	1	07/14/21 12:19	mfm
Iron (1312)	M6010D ICP	1	<0.06	U	*	mg/L	0.06	0.15	07/02/21 14:22	jlw
Iron, total (3050)	M6010D ICP	100	35200		*	mg/Kg	6	15	07/12/21 22:59	jlw
Lead (1312)	M6020B ICP-MS	10	2.01		*	mg/L	0.001	0.005	07/09/21 10:37	bsu
Lead, total (3050)	M6020B ICP-MS	20000	9320			mg/Kg	2	10	07/15/21 17:07	bsu
Magnesium (1312)	M6010D ICP	1	0.85	B	*	mg/L	0.2	1	07/02/21 14:22	jlw
Magnesium, total (3050)	M6010D ICP	100	1900			mg/Kg	20	100	07/12/21 22:59	jlw
Manganese (1312)	M6010D ICP	1	0.097		*	mg/L	0.01	0.05	07/02/21 14:22	jlw
Manganese, total (3050)	M6010D ICP	100	112		*	mg/Kg	1	5	07/12/21 22:59	jlw
Mercury (1312)	M7470A CVAA	5	0.0127		*	mg/L	0.001	0.005	07/02/21 16:33	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	11700		*	ng/g	7.72	38.6	06/30/21 16:18	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/02/21 14:22	jlw
Molybdenum, total (3050)	M6010D ICP	2000	2910			mg/Kg	40	200	07/13/21 14:07	jlw
Nickel (1312)	M6020B ICP-MS	1	0.00137		*	mg/L	0.0004	0.001	07/08/21 17:28	bsu
Nickel, total (3050)	M6020B ICP-MS	500	5.57		*	mg/Kg	0.2	0.5	07/14/21 12:19	mfm
Selenium (1312)	M6020B ICP-MS	1	0.00088		*	mg/L	0.0001	0.00025	07/08/21 17:28	bsu
Selenium, total (3050)	M6020B ICP-MS	500	4.06		*	mg/Kg	0.05	0.125	07/14/21 12:19	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/08/21 17:28	bsu
Thallium, total (3050)	M6020B ICP-MS	500	0.192	B		mg/Kg	0.05	0.25	07/14/21 12:19	mfm
Zinc (1312)	M6010D ICP	1	1.43		*	mg/L	0.02	0.05	07/02/21 14:22	jlw
Zinc, total (3050)	M6010D ICP	100	2830			mg/Kg	2	5	07/12/21 22:59	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-S2

ACZ Sample ID: **L66691-02**

Date Sampled: 06/04/21 07:47

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.1	B	*	%	0.1	0.5	06/30/21 9:50	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	<0.1	U	*	%	0.1	0.5	06/30/21 9:50	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.2	B	*	%	0.1	0.5	06/30/21 9:50	jpb
Conductivity @25C	SM2510B									
Conductivity		1	1.02		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.5		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	4.1		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.6		*	%	0.1	0.5	06/25/21 17:28	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	1.66		*	%	0.01	0.1	06/30/21 9:39	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 8:36	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 9:42	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 9:42	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:02	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 12:06	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 12:06	jpb
Synthetic Precip. Leaching Procedure	M1312								06/29/21 21:41	gkh/zln

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-1

ACZ Sample ID: **L66691-03**

Date Sampled: 06/04/21 06:36

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/06/21 7:35	mfm
Total Hot Plate Digestion	M3010A ICP								07/01/21 14:02	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.485		*	mg/L	0.05	0.25	07/02/21 14:33	jlw
Aluminum, total (3050)	M6010D ICP	101	2340		*	mg/Kg	5.05	25.3	07/12/21 23:06	jlw
Antimony (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.002	07/08/21 17:30	bsu
Antimony, total (3050)	M6020B ICP-MS	505	0.402	B	*	mg/Kg	0.202	1.01	07/15/21 17:09	bsu
Arsenic (1312)	M6020B ICP-MS	1	0.00071	B	*	mg/L	0.0002	0.001	07/08/21 17:30	bsu
Arsenic, total (3050)	M6020B ICP-MS	505	3.36		*	mg/Kg	0.101	0.505	07/14/21 12:20	mfm
Cadmium (1312)	M6020B ICP-MS	1	0.000124	B	*	mg/L	0.00005	0.00025	07/08/21 17:30	bsu
Cadmium, total (3050)	M6020B ICP-MS	505	0.119	B		mg/Kg	0.0253	0.126	07/14/21 12:20	mfm
Calcium (1312)	M6010D ICP	1	10.9			mg/L	0.1	0.5	07/02/21 14:33	jlw
Calcium, total (3050)	M6010D ICP	202	59500		*	mg/Kg	20.2	101	07/13/21 14:15	jlw
Copper (1312)	M6020B ICP-MS	1	0.00823		*	mg/L	0.0008	0.002	07/08/21 17:30	bsu
Copper, total (3050)	M6020B ICP-MS	505	16.3		*	mg/Kg	0.404	1.01	07/14/21 12:20	mfm
Iron (1312)	M6010D ICP	1	0.188		*	mg/L	0.06	0.15	07/02/21 14:33	jlw
Iron, total (3050)	M6010D ICP	101	8430		*	mg/Kg	6.06	15.2	07/12/21 23:06	jlw
Lead (1312)	M6020B ICP-MS	1	0.00128		*	mg/L	0.0001	0.0005	07/09/21 10:39	bsu
Lead, total (3050)	M6020B ICP-MS	505	4.60			mg/Kg	0.0505	0.253	07/15/21 17:09	bsu
Magnesium (1312)	M6010D ICP	1	0.51	B	*	mg/L	0.2	1	07/02/21 14:33	jlw
Magnesium, total (3050)	M6010D ICP	101	1280			mg/Kg	20.2	101	07/12/21 23:06	jlw
Manganese (1312)	M6010D ICP	1	<0.01	U	*	mg/L	0.01	0.05	07/02/21 14:33	jlw
Manganese, total (3050)	M6010D ICP	101	130		*	mg/Kg	1.01	5.05	07/12/21 23:06	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 9:48	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	6.26	B	*	ng/g	3.23	16.15	06/30/21 12:45	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/02/21 14:33	jlw
Molybdenum, total (3050)	M6010D ICP	101	<2.02	U		mg/Kg	2.02	10.1	07/12/21 23:06	jlw
Nickel (1312)	M6020B ICP-MS	1	0.00045	B	*	mg/L	0.0004	0.001	07/08/21 17:30	bsu
Nickel, total (3050)	M6020B ICP-MS	505	1.23		*	mg/Kg	0.202	0.505	07/14/21 12:20	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/08/21 17:30	bsu
Selenium, total (3050)	M6020B ICP-MS	505	0.132		*	mg/Kg	0.0505	0.126	07/14/21 12:20	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/08/21 17:30	bsu
Thallium, total (3050)	M6020B ICP-MS	505	<0.0505	U		mg/Kg	0.0505	0.253	07/14/21 12:20	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/02/21 14:33	jlw
Zinc, total (3050)	M6010D ICP	101	15.4			mg/Kg	2.02	5.05	07/12/21 23:06	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-1

ACZ Sample ID: **L66691-03**

Date Sampled: 06/04/21 06:36

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	3.2		*	%	0.1	0.5	06/30/21 10:03	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	3.0		*	%	0.1	0.5	06/30/21 10:03	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.2	B	*	%	0.1	0.5	06/30/21 10:03	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.240		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.7		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.7		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	06/25/21 21:42	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 9:48	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 8:42	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 9:59	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 9:59	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:04	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 12:12	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 12:12	jpb
Synthetic Precip. Leaching Procedure	M1312								06/30/21 0:57	gkh/zln

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-2

ACZ Sample ID: **L66691-04**

Date Sampled: 06/04/21 06:13

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/06/21 10:40	bsu
Total Hot Plate Digestion	M3010A ICP								07/04/21 11:49	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.392		*	mg/L	0.05	0.25	07/08/21 1:04	jlw
Aluminum, total (3050)	M6010D ICP	100	3870		*	mg/Kg	5	25	07/12/21 23:26	jlw
Antimony (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.002	07/08/21 20:58	bsu
Antimony, total (3050)	M6020B ICP-MS	500	0.467	B	*	mg/Kg	0.2	1	07/14/21 12:22	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00069	B	*	mg/L	0.0002	0.001	07/08/21 20:58	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	2.48		*	mg/Kg	0.1	0.5	07/14/21 12:22	mfm
Cadmium (1312)	M6020B ICP-MS	1	<0.00005	U	*	mg/L	0.00005	0.00025	07/08/21 20:58	bsu
Cadmium, total (3050)	M6020B ICP-MS	500	0.151			mg/Kg	0.025	0.125	07/14/21 12:22	mfm
Calcium (1312)	M6010D ICP	1	10.6			mg/L	0.1	0.5	07/08/21 1:04	jlw
Calcium, total (3050)	M6010D ICP	200	53900		*	mg/Kg	20	100	07/13/21 14:34	jlw
Copper (1312)	M6020B ICP-MS	1	0.00766		*	mg/L	0.0008	0.002	07/09/21 10:58	bsu
Copper, total (3050)	M6020B ICP-MS	500	22.5		*	mg/Kg	0.4	1	07/14/21 12:22	mfm
Iron (1312)	M6010D ICP	1	0.137	B	*	mg/L	0.06	0.15	07/08/21 1:04	jlw
Iron, total (3050)	M6010D ICP	100	12400		*	mg/Kg	6	15	07/12/21 23:26	jlw
Lead (1312)	M6020B ICP-MS	1	0.00061		*	mg/L	0.0001	0.0005	07/09/21 10:58	bsu
Lead, total (3050)	M6020B ICP-MS	500	6.79		*	mg/Kg	0.05	0.25	07/14/21 12:22	mfm
Magnesium (1312)	M6010D ICP	1	0.46	B	*	mg/L	0.2	1	07/08/21 1:04	jlw
Magnesium, total (3050)	M6010D ICP	100	1860			mg/Kg	20	100	07/12/21 23:26	jlw
Manganese (1312)	M6010D ICP	1	<0.01	U	*	mg/L	0.01	0.05	07/08/21 1:04	jlw
Manganese, total (3050)	M6010D ICP	100	177		*	mg/Kg	1	5	07/12/21 23:26	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 9:55	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	3.36	B	*	ng/g	3.01	15.05	06/30/21 13:02	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/08/21 1:04	jlw
Molybdenum, total (3050)	M6010D ICP	100	<2	U		mg/Kg	2	10	07/12/21 23:26	jlw
Nickel (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.001	07/08/21 20:58	bsu
Nickel, total (3050)	M6020B ICP-MS	500	1.81		*	mg/Kg	0.2	0.5	07/14/21 12:22	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/08/21 20:58	bsu
Selenium, total (3050)	M6020B ICP-MS	500	0.163		*	mg/Kg	0.05	0.125	07/14/21 12:22	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/08/21 20:58	bsu
Thallium, total (3050)	M6020B ICP-MS	500	0.0766	B		mg/Kg	0.05	0.25	07/14/21 12:22	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/08/21 1:04	jlw
Zinc, total (3050)	M6010D ICP	100	19.2			mg/Kg	2	5	07/12/21 23:26	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-2

ACZ Sample ID: **L66691-04**

Date Sampled: 06/04/21 06:13

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	2.8		*	%	0.1	0.5	06/30/21 10:10	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	2.6		*	%	0.1	0.5	06/30/21 10:10	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.2	B	*	%	0.1	0.5	06/30/21 10:10	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.233		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.7		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.6		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	06/26/21 1:56	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 9:52	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 8:48	jpb
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 10:48	mep
Digestion - Hot Plate	M3050B ICP								07/09/21 10:48	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:05	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 12:18	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 12:18	jpb
Synthetic Precip. Leaching Procedure	M1312								06/30/21 17:05	gkh/zln

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-3

ACZ Sample ID: **L66691-05**

Date Sampled: 06/04/21 08:29

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/06/21 12:23	bsu
Total Hot Plate Digestion	M3010A ICP								07/04/21 13:04	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.352		*	mg/L	0.05	0.25	07/08/21 1:15	jlw
Aluminum, total (3050)	M6010D ICP	100	4030		*	mg/Kg	5	25	07/12/21 23:30	jlw
Antimony (1312)	M6020B ICP-MS	1	0.00381		*	mg/L	0.0004	0.002	07/08/21 21:00	bsu
Antimony, total (3050)	M6020B ICP-MS	500	3.62		*	mg/Kg	0.2	1	07/14/21 12:24	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00212		*	mg/L	0.0002	0.001	07/08/21 21:00	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	3.38		*	mg/Kg	0.1	0.5	07/14/21 12:24	mfm
Cadmium (1312)	M6020B ICP-MS	1	0.000095	B	*	mg/L	0.00005	0.00025	07/08/21 21:00	bsu
Cadmium, total (3050)	M6020B ICP-MS	500	2.45			mg/Kg	0.025	0.125	07/14/21 12:24	mfm
Calcium (1312)	M6010D ICP	1	8.44			mg/L	0.1	0.5	07/08/21 1:15	jlw
Calcium, total (3050)	M6010D ICP	100	11400		*	mg/Kg	10	50	07/12/21 23:30	jlw
Copper (1312)	M6020B ICP-MS	1	0.0176		*	mg/L	0.0008	0.002	07/09/21 11:00	bsu
Copper, total (3050)	M6020B ICP-MS	500	128		*	mg/Kg	0.4	1	07/14/21 12:24	mfm
Iron (1312)	M6010D ICP	1	0.119	B	*	mg/L	0.06	0.15	07/08/21 1:15	jlw
Iron, total (3050)	M6010D ICP	100	14500		*	mg/Kg	6	15	07/12/21 23:30	jlw
Lead (1312)	M6020B ICP-MS	1	0.0178		*	mg/L	0.0001	0.0005	07/08/21 21:00	bsu
Lead, total (3050)	M6020B ICP-MS	500	54.2		*	mg/Kg	0.05	0.25	07/14/21 12:24	mfm
Magnesium (1312)	M6010D ICP	1	0.31	B	*	mg/L	0.2	1	07/08/21 1:15	jlw
Magnesium, total (3050)	M6010D ICP	100	1760			mg/Kg	20	100	07/12/21 23:30	jlw
Manganese (1312)	M6010D ICP	1	0.010	B	*	mg/L	0.01	0.05	07/08/21 1:15	jlw
Manganese, total (3050)	M6010D ICP	100	157		*	mg/Kg	1	5	07/12/21 23:30	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 9:58	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	46.2		*	ng/g	2.97	14.85	06/30/21 13:19	mlh
Molybdenum (1312)	M6010D ICP	1	0.023	B	*	mg/L	0.02	0.1	07/08/21 1:15	jlw
Molybdenum, total (3050)	M6010D ICP	100	5.35	B		mg/Kg	2	10	07/12/21 23:30	jlw
Nickel (1312)	M6020B ICP-MS	1	0.00817		*	mg/L	0.0004	0.001	07/08/21 21:00	bsu
Nickel, total (3050)	M6020B ICP-MS	500	1.98		*	mg/Kg	0.2	0.5	07/14/21 12:24	mfm
Selenium (1312)	M6020B ICP-MS	1	0.00013	B	*	mg/L	0.0001	0.00025	07/08/21 21:00	bsu
Selenium, total (3050)	M6020B ICP-MS	500	0.166		*	mg/Kg	0.05	0.125	07/14/21 12:24	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/08/21 21:00	bsu
Thallium, total (3050)	M6020B ICP-MS	500	0.0682	B		mg/Kg	0.05	0.25	07/14/21 12:24	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/08/21 1:15	jlw
Zinc, total (3050)	M6010D ICP	100	170			mg/Kg	2	5	07/12/21 23:30	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-3

ACZ Sample ID: **L66691-05**

Date Sampled: 06/04/21 08:29

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	2.0		*	%	0.1	0.5	06/30/21 10:16	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	1.5		*	%	0.1	0.5	06/30/21 10:16	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.5		*	%	0.1	0.5	06/30/21 10:16	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.255		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.6		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.7		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	06/26/21 6:10	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	0.01	B	*	%	0.01	0.1	06/30/21 9:55	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 8:54	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 11:04	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 11:04	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:08	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 12:24	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 12:24	jpb
Synthetic Precip. Leaching Procedure	M1312								06/30/21 19:47	gkh/zln

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-4

ACZ Sample ID: **L66691-06**

Date Sampled: 06/04/21 08:38

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/06/21 17:32	bsu
Total Hot Plate Digestion	M3010A ICP								07/04/21 13:29	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.433		*	mg/L	0.05	0.25	07/08/21 1:19	jlw
Aluminum, total (3050)	M6010D ICP	100	3150		*	mg/Kg	5	25	07/12/21 23:34	jlw
Antimony (1312)	M6020B ICP-MS	1	0.00145	B	*	mg/L	0.0004	0.002	07/08/21 21:06	bsu
Antimony, total (3050)	M6020B ICP-MS	500	1.27		*	mg/Kg	0.2	1	07/14/21 12:28	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00127		*	mg/L	0.0002	0.001	07/08/21 21:06	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	2.84		*	mg/Kg	0.1	0.5	07/14/21 12:28	mfm
Cadmium (1312)	M6020B ICP-MS	1	0.000091	B	*	mg/L	0.00005	0.00025	07/08/21 21:06	bsu
Cadmium, total (3050)	M6020B ICP-MS	500	0.258			mg/Kg	0.025	0.125	07/14/21 12:28	mfm
Calcium (1312)	M6010D ICP	1	9.56			mg/L	0.1	0.5	07/08/21 1:19	jlw
Calcium, total (3050)	M6010D ICP	100	9220		*	mg/Kg	10	50	07/12/21 23:34	jlw
Copper (1312)	M6020B ICP-MS	1	0.0152		*	mg/L	0.0008	0.002	07/09/21 11:09	bsu
Copper, total (3050)	M6020B ICP-MS	500	40.3		*	mg/Kg	0.4	1	07/14/21 12:28	mfm
Iron (1312)	M6010D ICP	1	0.321		*	mg/L	0.06	0.15	07/08/21 1:19	jlw
Iron, total (3050)	M6010D ICP	100	10100		*	mg/Kg	6	15	07/12/21 23:34	jlw
Lead (1312)	M6020B ICP-MS	1	0.00802		*	mg/L	0.0001	0.0005	07/08/21 21:06	bsu
Lead, total (3050)	M6020B ICP-MS	500	47.9		*	mg/Kg	0.05	0.25	07/14/21 12:28	mfm
Magnesium (1312)	M6010D ICP	1	0.79	B	*	mg/L	0.2	1	07/08/21 1:19	jlw
Magnesium, total (3050)	M6010D ICP	100	1330			mg/Kg	20	100	07/12/21 23:34	jlw
Manganese (1312)	M6010D ICP	1	0.012	B	*	mg/L	0.01	0.05	07/08/21 1:19	jlw
Manganese, total (3050)	M6010D ICP	100	264		*	mg/Kg	1	5	07/12/21 23:34	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 9:59	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	66		*	ng/g	3.31	16.55	06/30/21 13:28	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/08/21 1:19	jlw
Molybdenum, total (3050)	M6010D ICP	100	18.7			mg/Kg	2	10	07/12/21 23:34	jlw
Nickel (1312)	M6020B ICP-MS	1	0.00046	B	*	mg/L	0.0004	0.001	07/08/21 21:06	bsu
Nickel, total (3050)	M6020B ICP-MS	500	1.55		*	mg/Kg	0.2	0.5	07/14/21 12:28	mfm
Selenium (1312)	M6020B ICP-MS	1	0.00011	B	*	mg/L	0.0001	0.00025	07/08/21 21:06	bsu
Selenium, total (3050)	M6020B ICP-MS	500	0.147		*	mg/Kg	0.05	0.125	07/14/21 12:28	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/08/21 21:06	bsu
Thallium, total (3050)	M6020B ICP-MS	500	0.0965	B		mg/Kg	0.05	0.25	07/14/21 12:28	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/08/21 1:19	jlw
Zinc, total (3050)	M6010D ICP	100	26.1			mg/Kg	2	5	07/12/21 23:34	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-4

ACZ Sample ID: **L66691-06**

Date Sampled: 06/04/21 08:38

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	2.4		*	%	0.1	0.5	06/30/21 10:23	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	1.9		*	%	0.1	0.5	06/30/21 10:23	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.5		*	%	0.1	0.5	06/30/21 10:23	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.391		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.7		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.5		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	06/26/21 10:24	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 9:58	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 9:00	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 11:21	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 11:21	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:10	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 12:30	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 12:30	jpb
Synthetic Precip. Leaching Procedure	M1312								06/30/21 22:29	gkh/zln

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-5

ACZ Sample ID: **L66691-07**

Date Sampled: 06/04/21 08:47

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/06/21 20:57	bsu
Total Hot Plate Digestion	M3010A ICP								07/04/21 14:18	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.446		*	mg/L	0.05	0.25	07/08/21 1:26	jlw
Aluminum, total (3050)	M6010D ICP	100	3090		*	mg/Kg	5	25	07/12/21 23:37	jlw
Antimony (1312)	M6020B ICP-MS	1	0.00207		*	mg/L	0.0004	0.002	07/08/21 21:13	bsu
Antimony, total (3050)	M6020B ICP-MS	500	0.691	B	*	mg/Kg	0.2	1	07/14/21 12:33	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00156		*	mg/L	0.0002	0.001	07/08/21 21:13	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	3.30		*	mg/Kg	0.1	0.5	07/14/21 12:33	mfm
Cadmium (1312)	M6020B ICP-MS	1	<0.00005	U	*	mg/L	0.00005	0.00025	07/08/21 21:13	bsu
Cadmium, total (3050)	M6020B ICP-MS	500	0.313			mg/Kg	0.025	0.125	07/14/21 12:33	mfm
Calcium (1312)	M6010D ICP	1	6.87			mg/L	0.1	0.5	07/08/21 1:26	jlw
Calcium, total (3050)	M6010D ICP	100	4260		*	mg/Kg	10	50	07/12/21 23:37	jlw
Copper (1312)	M6020B ICP-MS	1	0.0109		*	mg/L	0.0008	0.002	07/09/21 11:13	bsu
Copper, total (3050)	M6020B ICP-MS	500	32.8		*	mg/Kg	0.4	1	07/14/21 12:33	mfm
Iron (1312)	M6010D ICP	1	0.112	B	*	mg/L	0.06	0.15	07/08/21 1:26	jlw
Iron, total (3050)	M6010D ICP	100	9940		*	mg/Kg	6	15	07/12/21 23:37	jlw
Lead (1312)	M6020B ICP-MS	1	0.00807		*	mg/L	0.0001	0.0005	07/08/21 21:13	bsu
Lead, total (3050)	M6020B ICP-MS	500	12.1		*	mg/Kg	0.05	0.25	07/14/21 12:33	mfm
Magnesium (1312)	M6010D ICP	1	0.21	B	*	mg/L	0.2	1	07/08/21 1:26	jlw
Magnesium, total (3050)	M6010D ICP	100	1220			mg/Kg	20	100	07/12/21 23:37	jlw
Manganese (1312)	M6010D ICP	1	<0.01	U	*	mg/L	0.01	0.05	07/08/21 1:26	jlw
Manganese, total (3050)	M6010D ICP	100	172		*	mg/Kg	1	5	07/12/21 23:37	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 10:01	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	14.6		*	ng/g	2.8	14	06/30/21 13:37	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/08/21 1:26	jlw
Molybdenum, total (3050)	M6010D ICP	100	<2	U		mg/Kg	2	10	07/12/21 23:37	jlw
Nickel (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.001	07/08/21 21:13	bsu
Nickel, total (3050)	M6020B ICP-MS	500	1.82		*	mg/Kg	0.2	0.5	07/14/21 12:33	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/08/21 21:13	bsu
Selenium, total (3050)	M6020B ICP-MS	500	0.258		*	mg/Kg	0.05	0.125	07/14/21 12:33	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/08/21 21:13	bsu
Thallium, total (3050)	M6020B ICP-MS	500	0.0759	B		mg/Kg	0.05	0.25	07/14/21 12:33	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/08/21 1:26	jlw
Zinc, total (3050)	M6010D ICP	100	24.8			mg/Kg	2	5	07/12/21 23:37	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-5

ACZ Sample ID: **L66691-07**

Date Sampled: 06/04/21 08:47

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.4		*	%	0.1	0.5	06/30/21 10:30	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	1.2		*	%	0.1	0.5	06/30/21 10:30	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.2	B	*	%	0.1	0.5	06/30/21 10:30	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.154		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.5		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	8.1		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	06/26/21 14:38	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 10:01	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 9:06	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 11:37	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 11:37	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:11	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 12:36	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 12:36	jpb
Synthetic Precip. Leaching Procedure	M1312								07/01/21 0:16	gkh/zln

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-6

ACZ Sample ID: **L66691-08**

Date Sampled: 06/04/21 08:55

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/06/21 22:40	bsu
Total Hot Plate Digestion	M3010A ICP								07/04/21 14:43	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.391		*	mg/L	0.05	0.25	07/08/21 1:30	jlw
Aluminum, total (3050)	M6010D ICP	100	3140		*	mg/Kg	5	25	07/12/21 23:41	jlw
Antimony (1312)	M6020B ICP-MS	1	0.00521		*	mg/L	0.0004	0.002	07/08/21 21:15	bsu
Antimony, total (3050)	M6020B ICP-MS	500	0.427	B	*	mg/Kg	0.2	1	07/14/21 12:35	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00232		*	mg/L	0.0002	0.001	07/08/21 21:15	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	2.33		*	mg/Kg	0.1	0.5	07/14/21 12:35	mfm
Cadmium (1312)	M6020B ICP-MS	1	0.000083	B	*	mg/L	0.00005	0.00025	07/08/21 21:15	bsu
Cadmium, total (3050)	M6020B ICP-MS	500	0.190			mg/Kg	0.025	0.125	07/14/21 12:35	mfm
Calcium (1312)	M6010D ICP	1	6.90			mg/L	0.1	0.5	07/08/21 1:30	jlw
Calcium, total (3050)	M6010D ICP	100	3440		*	mg/Kg	10	50	07/12/21 23:41	jlw
Copper (1312)	M6020B ICP-MS	1	0.0308		*	mg/L	0.0008	0.002	07/09/21 11:15	bsu
Copper, total (3050)	M6020B ICP-MS	500	37.0		*	mg/Kg	0.4	1	07/14/21 12:35	mfm
Iron (1312)	M6010D ICP	1	0.116	B	*	mg/L	0.06	0.15	07/08/21 1:30	jlw
Iron, total (3050)	M6010D ICP	100	8640		*	mg/Kg	6	15	07/12/21 23:41	jlw
Lead (1312)	M6020B ICP-MS	1	0.00647		*	mg/L	0.0001	0.0005	07/08/21 21:15	bsu
Lead, total (3050)	M6020B ICP-MS	500	12.6		*	mg/Kg	0.05	0.25	07/14/21 12:35	mfm
Magnesium (1312)	M6010D ICP	1	0.41	B	*	mg/L	0.2	1	07/08/21 1:30	jlw
Magnesium, total (3050)	M6010D ICP	100	1300			mg/Kg	20	100	07/12/21 23:41	jlw
Manganese (1312)	M6010D ICP	1	0.011	B	*	mg/L	0.01	0.05	07/08/21 1:30	jlw
Manganese, total (3050)	M6010D ICP	100	127		*	mg/Kg	1	5	07/12/21 23:41	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 10:03	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	13.6	B	*	ng/g	2.9	14.5	06/30/21 13:53	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/08/21 1:30	jlw
Molybdenum, total (3050)	M6010D ICP	100	2.24	B		mg/Kg	2	10	07/12/21 23:41	jlw
Nickel (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.001	07/08/21 21:15	bsu
Nickel, total (3050)	M6020B ICP-MS	500	1.34		*	mg/Kg	0.2	0.5	07/14/21 12:35	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/08/21 21:15	bsu
Selenium, total (3050)	M6020B ICP-MS	500	0.132		*	mg/Kg	0.05	0.125	07/14/21 12:35	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/08/21 21:15	bsu
Thallium, total (3050)	M6020B ICP-MS	500	0.0562	B		mg/Kg	0.05	0.25	07/14/21 12:35	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/08/21 1:30	jlw
Zinc, total (3050)	M6010D ICP	100	23.0			mg/Kg	2	5	07/12/21 23:41	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-6

ACZ Sample ID: **L66691-08**

Date Sampled: 06/04/21 08:55

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.3		*	%	0.1	0.5	06/30/21 10:36	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	1.0		*	%	0.1	0.5	06/30/21 10:36	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.3	B	*	%	0.1	0.5	06/30/21 10:36	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.196		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.5		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.9		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	06/26/21 18:52	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 10:04	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 9:12	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 11:54	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 11:54	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:12	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 12:42	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 12:42	jpb
Synthetic Precip. Leaching Procedure	M1312								07/01/21 1:10	gkh/zln

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-7

ACZ Sample ID: **L66691-09**

Date Sampled: 06/04/21 09:05

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/07/21 0:23	bsu
Total Hot Plate Digestion	M3010A ICP								07/04/21 15:08	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.289		*	mg/L	0.05	0.25	07/08/21 1:41	jlw
Aluminum, total (3050)	M6010D ICP	99	4580		*	mg/Kg	4.95	24.8	07/12/21 23:45	jlw
Antimony (1312)	M6020B ICP-MS	1	0.00193	B	*	mg/L	0.0004	0.002	07/08/21 21:17	bsu
Antimony, total (3050)	M6020B ICP-MS	495	8.64		*	mg/Kg	0.198	0.99	07/14/21 12:37	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00158		*	mg/L	0.0002	0.001	07/08/21 21:17	bsu
Arsenic, total (3050)	M6020B ICP-MS	495	3.01		*	mg/Kg	0.099	0.495	07/14/21 12:37	mfm
Cadmium (1312)	M6020B ICP-MS	1	0.000068	B	*	mg/L	0.00005	0.00025	07/08/21 21:17	bsu
Cadmium, total (3050)	M6020B ICP-MS	495	0.385			mg/Kg	0.0248	0.124	07/14/21 12:37	mfm
Calcium (1312)	M6010D ICP	1	8.16			mg/L	0.1	0.5	07/08/21 1:41	jlw
Calcium, total (3050)	M6010D ICP	99	11300		*	mg/Kg	9.9	49.5	07/12/21 23:45	jlw
Copper (1312)	M6020B ICP-MS	1	0.0147		*	mg/L	0.0008	0.002	07/09/21 11:17	bsu
Copper, total (3050)	M6020B ICP-MS	495	54.6		*	mg/Kg	0.396	0.99	07/14/21 12:37	mfm
Iron (1312)	M6010D ICP	1	0.121	B	*	mg/L	0.06	0.15	07/08/21 1:41	jlw
Iron, total (3050)	M6010D ICP	99	10100		*	mg/Kg	5.94	14.9	07/12/21 23:45	jlw
Lead (1312)	M6020B ICP-MS	1	0.00520		*	mg/L	0.0001	0.0005	07/09/21 11:17	bsu
Lead, total (3050)	M6020B ICP-MS	495	34.8		*	mg/Kg	0.0495	0.248	07/14/21 12:37	mfm
Magnesium (1312)	M6010D ICP	1	0.42	B	*	mg/L	0.2	1	07/08/21 1:41	jlw
Magnesium, total (3050)	M6010D ICP	99	2270			mg/Kg	19.8	99	07/12/21 23:45	jlw
Manganese (1312)	M6010D ICP	1	0.011	B	*	mg/L	0.01	0.05	07/08/21 1:41	jlw
Manganese, total (3050)	M6010D ICP	99	266		*	mg/Kg	0.99	4.95	07/12/21 23:45	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 10:04	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	21.9		*	ng/g	2.64	13.2	06/30/21 14:02	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/08/21 1:41	jlw
Molybdenum, total (3050)	M6010D ICP	99	4.50	B		mg/Kg	1.98	9.9	07/12/21 23:45	jlw
Nickel (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.001	07/08/21 21:17	bsu
Nickel, total (3050)	M6020B ICP-MS	495	2.18		*	mg/Kg	0.198	0.495	07/14/21 12:37	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/08/21 21:17	bsu
Selenium, total (3050)	M6020B ICP-MS	495	0.165		*	mg/Kg	0.0495	0.124	07/14/21 12:37	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/08/21 21:17	bsu
Thallium, total (3050)	M6020B ICP-MS	495	0.0771	B		mg/Kg	0.0495	0.248	07/14/21 12:37	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/08/21 1:41	jlw
Zinc, total (3050)	M6010D ICP	99	38.3			mg/Kg	1.98	4.95	07/12/21 23:45	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-7

ACZ Sample ID: **L66691-09**

Date Sampled: 06/04/21 09:05

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	2.7		*	%	0.1	0.5	06/30/21 10:43	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	2.0		*	%	0.1	0.5	06/30/21 10:43	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.7		*	%	0.1	0.5	06/30/21 10:43	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.304		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.6		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.9		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	06/26/21 23:07	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 10:07	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 9:18	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 12:10	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 12:10	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:14	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 12:48	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 12:48	jpb
Synthetic Precip. Leaching Procedure	M1312								07/01/21 2:04	gkh/zln

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-8

ACZ Sample ID: **L66691-10**

Date Sampled: 06/04/21 09:19

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/07/21 2:06	bsu
Total Hot Plate Digestion	M3010A ICP								07/04/21 15:33	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.290		*	mg/L	0.05	0.25	07/08/21 1:45	jlw
Aluminum, total (3050)	M6010D ICP	99	3300		*	mg/Kg	4.95	24.8	07/12/21 23:49	jlw
Antimony (1312)	M6020B ICP-MS	1	0.00129	B	*	mg/L	0.0004	0.002	07/08/21 21:19	bsu
Antimony, total (3050)	M6020B ICP-MS	495	0.337	B	*	mg/Kg	0.198	0.99	07/14/21 12:38	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00133		*	mg/L	0.0002	0.001	07/08/21 21:19	bsu
Arsenic, total (3050)	M6020B ICP-MS	495	3.17		*	mg/Kg	0.099	0.495	07/14/21 12:38	mfm
Cadmium (1312)	M6020B ICP-MS	1	0.000071	B	*	mg/L	0.00005	0.00025	07/08/21 21:19	bsu
Cadmium, total (3050)	M6020B ICP-MS	495	0.310			mg/Kg	0.0248	0.124	07/14/21 12:38	mfm
Calcium (1312)	M6010D ICP	1	6.81			mg/L	0.1	0.5	07/08/21 1:45	jlw
Calcium, total (3050)	M6010D ICP	99	2790		*	mg/Kg	9.9	49.5	07/12/21 23:49	jlw
Copper (1312)	M6020B ICP-MS	1	0.0150		*	mg/L	0.0008	0.002	07/09/21 11:18	bsu
Copper, total (3050)	M6020B ICP-MS	495	36.4		*	mg/Kg	0.396	0.99	07/14/21 12:38	mfm
Iron (1312)	M6010D ICP	1	0.103	B	*	mg/L	0.06	0.15	07/08/21 1:45	jlw
Iron, total (3050)	M6010D ICP	99	7450		*	mg/Kg	5.94	14.9	07/12/21 23:49	jlw
Lead (1312)	M6020B ICP-MS	1	0.00423		*	mg/L	0.0001	0.0005	07/09/21 11:18	bsu
Lead, total (3050)	M6020B ICP-MS	495	9.38		*	mg/Kg	0.0495	0.248	07/14/21 12:38	mfm
Magnesium (1312)	M6010D ICP	1	0.35	B	*	mg/L	0.2	1	07/08/21 1:45	jlw
Magnesium, total (3050)	M6010D ICP	99	1250			mg/Kg	19.8	99	07/12/21 23:49	jlw
Manganese (1312)	M6010D ICP	1	0.015	B	*	mg/L	0.01	0.05	07/08/21 1:45	jlw
Manganese, total (3050)	M6010D ICP	99	161		*	mg/Kg	0.99	4.95	07/12/21 23:49	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 10:05	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	82.1		*	ng/g	3.23	16.15	06/30/21 14:11	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/08/21 1:45	jlw
Molybdenum, total (3050)	M6010D ICP	99	<1.98	U		mg/Kg	1.98	9.9	07/12/21 23:49	jlw
Nickel (1312)	M6020B ICP-MS	1	0.00041	B	*	mg/L	0.0004	0.001	07/08/21 21:19	bsu
Nickel, total (3050)	M6020B ICP-MS	495	1.37		*	mg/Kg	0.198	0.495	07/14/21 12:38	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/08/21 21:19	bsu
Selenium, total (3050)	M6020B ICP-MS	495	0.223		*	mg/Kg	0.0495	0.124	07/14/21 12:38	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/08/21 21:19	bsu
Thallium, total (3050)	M6020B ICP-MS	495	0.0540	B		mg/Kg	0.0495	0.248	07/14/21 12:38	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/08/21 1:45	jlw
Zinc, total (3050)	M6010D ICP	99	20.9			mg/Kg	1.98	4.95	07/12/21 23:49	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-8

ACZ Sample ID: **L66691-10**

Date Sampled: 06/04/21 09:19

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.3		*	%	0.1	0.5	06/30/21 10:50	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	0.7		*	%	0.1	0.5	06/30/21 10:50	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.6		*	%	0.1	0.5	06/30/21 10:50	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.268		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.4		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.9		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	06/27/21 3:21	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 10:10	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 9:24	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 12:26	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 12:26	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:15	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 12:54	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 12:54	jpb
Synthetic Precip. Leaching Procedure	M1312								07/01/21 2:58	gkh/zln

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-10

ACZ Sample ID: **L66691-11**

Date Sampled: 06/09/21 12:09

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/10/21 13:15	mfm
Total Hot Plate Digestion	M3010A ICP								07/12/21 11:45	jlw

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.650		*	mg/L	0.05	0.25	07/13/21 11:32	jlw
Aluminum, total (3050)	M6010D ICP	99	3430		*	mg/Kg	4.95	24.8	07/12/21 23:53	jlw
Antimony (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.002	07/12/21 20:14	bsu
Antimony, total (3050)	M6020B ICP-MS	495	<0.198	U	*	mg/Kg	0.198	0.99	07/14/21 12:40	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00038	B	*	mg/L	0.0002	0.001	07/12/21 20:14	bsu
Arsenic, total (3050)	M6020B ICP-MS	495	1.38		*	mg/Kg	0.099	0.495	07/14/21 12:40	mfm
Cadmium (1312)	M6020B ICP-MS	1	<0.00005	U	*	mg/L	0.00005	0.00025	07/12/21 20:14	bsu
Cadmium, total (3050)	M6020B ICP-MS	495	0.0972	B		mg/Kg	0.0248	0.124	07/14/21 12:40	mfm
Calcium (1312)	M6010D ICP	1	1.67			mg/L	0.1	0.5	07/13/21 11:32	jlw
Calcium, total (3050)	M6010D ICP	99	1530		*	mg/Kg	9.9	49.5	07/12/21 23:53	jlw
Copper (1312)	M6020B ICP-MS	1	0.00510		*	mg/L	0.0008	0.002	07/12/21 20:14	bsu
Copper, total (3050)	M6020B ICP-MS	495	19.9		*	mg/Kg	0.396	0.99	07/14/21 12:40	mfm
Iron (1312)	M6010D ICP	1	0.417		*	mg/L	0.06	0.15	07/13/21 11:32	jlw
Iron, total (3050)	M6010D ICP	99	7950		*	mg/Kg	5.94	14.9	07/12/21 23:53	jlw
Lead (1312)	M6020B ICP-MS	1	0.00049	B	*	mg/L	0.0001	0.0005	07/12/21 20:14	bsu
Lead, total (3050)	M6020B ICP-MS	495	3.83		*	mg/Kg	0.0495	0.248	07/14/21 12:40	mfm
Magnesium (1312)	M6010D ICP	1	0.21	B	*	mg/L	0.2	1	07/13/21 11:32	jlw
Magnesium, total (3050)	M6010D ICP	99	975			mg/Kg	19.8	99	07/12/21 23:53	jlw
Manganese (1312)	M6010D ICP	1	0.012	B	*	mg/L	0.01	0.05	07/13/21 11:32	jlw
Manganese, total (3050)	M6010D ICP	99	119		*	mg/Kg	0.99	4.95	07/12/21 23:53	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 10:08	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	7.76	B	*	ng/g	3.2	16	06/30/21 14:19	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/13/21 11:32	jlw
Molybdenum, total (3050)	M6010D ICP	99	<1.98	U		mg/Kg	1.98	9.9	07/12/21 23:53	jlw
Nickel (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.001	07/12/21 20:14	bsu
Nickel, total (3050)	M6020B ICP-MS	495	1.53		*	mg/Kg	0.198	0.495	07/14/21 12:40	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/12/21 20:14	bsu
Selenium, total (3050)	M6020B ICP-MS	495	0.1000	B	*	mg/Kg	0.0495	0.124	07/14/21 12:40	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/12/21 20:14	bsu
Thallium, total (3050)	M6020B ICP-MS	495	0.0591	B		mg/Kg	0.0495	0.248	07/14/21 12:40	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/13/21 11:32	jlw
Zinc, total (3050)	M6010D ICP	99	13.6			mg/Kg	1.98	4.95	07/12/21 23:53	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-10

ACZ Sample ID: **L66691-11**

Date Sampled: 06/09/21 12:09

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.6		*	%	0.1	0.5	06/30/21 10:56	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	0.1	B	*	%	0.1	0.5	06/30/21 10:56	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.5		*	%	0.1	0.5	06/30/21 10:56	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.251		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.5		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.3		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.9		*	%	0.1	0.5	06/27/21 7:35	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 10:14	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 9:30	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 12:43	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 12:43	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:17	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 13:00	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 13:00	jpb
Synthetic Precip. Leaching Procedure	M1312								07/07/21 14:00	zln/gkh

Arizona license number: **AZ0102**

Hudbay Minerals

Project ID:

Sample ID: D2-11

ACZ Sample ID: **L66691-12**

Date Sampled: 06/09/21 08:09

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/10/21 13:15	mfm
Total Hot Plate Digestion	M3010A ICP								07/12/21 12:46	jlw

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.499		*	mg/L	0.05	0.25	07/13/21 11:44	jlw
Aluminum, total (3050)	M6010D ICP	99	3020		*	mg/Kg	4.95	24.8	07/13/21 0:04	jlw
Antimony (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.002	07/12/21 20:16	bsu
Antimony, total (3050)	M6020B ICP-MS	495	<0.198	U	*	mg/Kg	0.198	0.99	07/14/21 12:42	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00046	B	*	mg/L	0.0002	0.001	07/12/21 20:16	bsu
Arsenic, total (3050)	M6020B ICP-MS	495	1.18		*	mg/Kg	0.099	0.495	07/14/21 12:42	mfm
Cadmium (1312)	M6020B ICP-MS	1	<0.00005	U	*	mg/L	0.00005	0.00025	07/12/21 20:16	bsu
Cadmium, total (3050)	M6020B ICP-MS	495	0.0967	B		mg/Kg	0.0248	0.124	07/14/21 12:42	mfm
Calcium (1312)	M6010D ICP	1	13.4			mg/L	0.1	0.5	07/13/21 11:44	jlw
Calcium, total (3050)	M6010D ICP	99	3000		*	mg/Kg	9.9	49.5	07/13/21 0:04	jlw
Copper (1312)	M6020B ICP-MS	1	0.00596		*	mg/L	0.0008	0.002	07/12/21 20:16	bsu
Copper, total (3050)	M6020B ICP-MS	495	13.0		*	mg/Kg	0.396	0.99	07/14/21 12:42	mfm
Iron (1312)	M6010D ICP	1	0.227		*	mg/L	0.06	0.15	07/13/21 11:44	jlw
Iron, total (3050)	M6010D ICP	99	4510		*	mg/Kg	5.94	14.9	07/13/21 0:04	jlw
Lead (1312)	M6020B ICP-MS	1	0.00056		*	mg/L	0.0001	0.0005	07/12/21 20:16	bsu
Lead, total (3050)	M6020B ICP-MS	495	3.44		*	mg/Kg	0.0495	0.248	07/14/21 12:42	mfm
Magnesium (1312)	M6010D ICP	1	1.49		*	mg/L	0.2	1	07/13/21 11:44	jlw
Magnesium, total (3050)	M6010D ICP	99	855			mg/Kg	19.8	99	07/13/21 0:04	jlw
Manganese (1312)	M6010D ICP	1	<0.01	U	*	mg/L	0.01	0.05	07/13/21 11:44	jlw
Manganese, total (3050)	M6010D ICP	99	106		*	mg/Kg	0.99	4.95	07/13/21 0:04	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 10:10	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	10	B	*	ng/g	3.21	16.05	06/30/21 14:28	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/13/21 11:44	jlw
Molybdenum, total (3050)	M6010D ICP	99	<1.98	U		mg/Kg	1.98	9.9	07/13/21 0:04	jlw
Nickel (1312)	M6020B ICP-MS	1	0.00044	B	*	mg/L	0.0004	0.001	07/12/21 20:16	bsu
Nickel, total (3050)	M6020B ICP-MS	495	1.24		*	mg/Kg	0.198	0.495	07/14/21 12:42	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/12/21 20:16	bsu
Selenium, total (3050)	M6020B ICP-MS	495	0.0859	B	*	mg/Kg	0.0495	0.124	07/14/21 12:42	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/12/21 20:16	bsu
Thallium, total (3050)	M6020B ICP-MS	495	<0.0495	U		mg/Kg	0.0495	0.248	07/14/21 12:42	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/13/21 11:44	jlw
Zinc, total (3050)	M6010D ICP	99	12.4			mg/Kg	1.98	4.95	07/13/21 0:04	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-11

ACZ Sample ID: **L66691-12**

Date Sampled: 06/09/21 08:09

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.3		*	%	0.1	0.5	06/30/21 11:03	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	0.1	B	*	%	0.1	0.5	06/30/21 11:03	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	1.2		*	%	0.1	0.5	06/30/21 11:03	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.651		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.5		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.4		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	06/27/21 11:49	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	0.02	B	*	%	0.01	0.1	06/30/21 10:17	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 9:36	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 12:59	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 12:59	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:18	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 13:06	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 13:06	jpb
Synthetic Precip. Leaching Procedure	M1312								07/07/21 17:06	zln/gkh

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-12

ACZ Sample ID: **L66691-13**

Date Sampled: 06/09/21 06:49

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/10/21 13:15	mfm
Total Hot Plate Digestion	M3010A ICP								07/12/21 13:06	jlw

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.890		*	mg/L	0.05	0.25	07/13/21 11:48	jlw
Aluminum, total (3050)	M6010D ICP	100	2290		*	mg/Kg	5	25	07/13/21 0:08	jlw
Antimony (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.002	07/12/21 20:22	bsu
Antimony, total (3050)	M6020B ICP-MS	500	0.265	B	*	mg/Kg	0.2	1	07/14/21 12:44	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00042	B	*	mg/L	0.0002	0.001	07/12/21 20:22	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	1.06		*	mg/Kg	0.1	0.5	07/14/21 12:44	mfm
Cadmium (1312)	M6020B ICP-MS	1	<0.00005	U	*	mg/L	0.00005	0.00025	07/12/21 20:22	bsu
Cadmium, total (3050)	M6020B ICP-MS	500	0.0729	B		mg/Kg	0.025	0.125	07/14/21 12:44	mfm
Calcium (1312)	M6010D ICP	1	1.91			mg/L	0.1	0.5	07/13/21 11:48	jlw
Calcium, total (3050)	M6010D ICP	100	1030		*	mg/Kg	10	50	07/13/21 0:08	jlw
Copper (1312)	M6020B ICP-MS	1	0.00409		*	mg/L	0.0008	0.002	07/12/21 20:22	bsu
Copper, total (3050)	M6020B ICP-MS	500	12.9		*	mg/Kg	0.4	1	07/14/21 12:44	mfm
Iron (1312)	M6010D ICP	1	0.499		*	mg/L	0.06	0.15	07/13/21 11:48	jlw
Iron, total (3050)	M6010D ICP	100	5210		*	mg/Kg	6	15	07/13/21 0:08	jlw
Lead (1312)	M6020B ICP-MS	1	0.00057		*	mg/L	0.0001	0.0005	07/12/21 20:22	bsu
Lead, total (3050)	M6020B ICP-MS	500	3.11		*	mg/Kg	0.05	0.25	07/14/21 12:44	mfm
Magnesium (1312)	M6010D ICP	1	0.29	B	*	mg/L	0.2	1	07/13/21 11:48	jlw
Magnesium, total (3050)	M6010D ICP	100	615			mg/Kg	20	100	07/13/21 0:08	jlw
Manganese (1312)	M6010D ICP	1	0.010	B	*	mg/L	0.01	0.05	07/13/21 11:48	jlw
Manganese, total (3050)	M6010D ICP	100	141		*	mg/Kg	1	5	07/13/21 0:08	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 10:11	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	3.54	B	*	ng/g	2.94	14.7	06/30/21 14:37	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/13/21 11:48	jlw
Molybdenum, total (3050)	M6010D ICP	100	<2	U		mg/Kg	2	10	07/13/21 0:08	jlw
Nickel (1312)	M6020B ICP-MS	1	0.00100	B	*	mg/L	0.0004	0.001	07/12/21 20:22	bsu
Nickel, total (3050)	M6020B ICP-MS	500	1.85		*	mg/Kg	0.2	0.5	07/14/21 12:44	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/12/21 20:22	bsu
Selenium, total (3050)	M6020B ICP-MS	500	0.0783	B	*	mg/Kg	0.05	0.125	07/14/21 12:44	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/12/21 20:22	bsu
Thallium, total (3050)	M6020B ICP-MS	500	<0.05	U		mg/Kg	0.05	0.25	07/14/21 12:44	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/13/21 11:48	jlw
Zinc, total (3050)	M6010D ICP	100	8.58			mg/Kg	2	5	07/13/21 0:08	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-12

ACZ Sample ID: **L66691-13**

Date Sampled: 06/09/21 06:49

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.7		*	%	0.1	0.5	06/30/21 11:10	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	<0.1	U	*	%	0.1	0.5	06/30/21 11:10	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.7		*	%	0.1	0.5	06/30/21 11:10	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.166		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.7		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.3		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.9		*	%	0.1	0.5	06/27/21 16:03	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 10:20	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 9:42	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 13:16	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 13:16	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:20	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 13:12	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 13:12	jpb
Synthetic Precip. Leaching Procedure	M1312								07/07/21 20:13	zln/gkh

Arizona license number: **AZ0102**

Hudbay Minerals

Project ID:

Sample ID: D2-14

ACZ Sample ID: **L66691-14**

Date Sampled: 06/09/21 09:18

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/10/21 13:15	mfm
Total Hot Plate Digestion	M3010A ICP								07/12/21 13:27	jlw

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.755		*	mg/L	0.05	0.25	07/13/21 11:51	jlw
Aluminum, total (3050)	M6010D ICP	100	3250		*	mg/Kg	5	25	07/13/21 0:12	jlw
Antimony (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.002	07/12/21 20:27	bsu
Antimony, total (3050)	M6020B ICP-MS	500	0.297	B	*	mg/Kg	0.2	1	07/14/21 12:46	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00052	B	*	mg/L	0.0002	0.001	07/12/21 20:27	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	1.89		*	mg/Kg	0.1	0.5	07/14/21 12:46	mfm
Cadmium (1312)	M6020B ICP-MS	1	<0.00005	U	*	mg/L	0.00005	0.00025	07/12/21 20:27	bsu
Cadmium, total (3050)	M6020B ICP-MS	500	0.130			mg/Kg	0.025	0.125	07/14/21 12:46	mfm
Calcium (1312)	M6010D ICP	1	1.53			mg/L	0.1	0.5	07/13/21 11:51	jlw
Calcium, total (3050)	M6010D ICP	100	1410		*	mg/Kg	10	50	07/13/21 0:12	jlw
Copper (1312)	M6020B ICP-MS	1	0.00382		*	mg/L	0.0008	0.002	07/12/21 20:27	bsu
Copper, total (3050)	M6020B ICP-MS	500	8.17		*	mg/Kg	0.4	1	07/14/21 12:46	mfm
Iron (1312)	M6010D ICP	1	0.437		*	mg/L	0.06	0.15	07/13/21 11:51	jlw
Iron, total (3050)	M6010D ICP	100	7780		*	mg/Kg	6	15	07/13/21 0:12	jlw
Lead (1312)	M6020B ICP-MS	1	0.00121		*	mg/L	0.0001	0.0005	07/12/21 20:27	bsu
Lead, total (3050)	M6020B ICP-MS	500	4.15		*	mg/Kg	0.05	0.25	07/14/21 12:46	mfm
Magnesium (1312)	M6010D ICP	1	0.25	B	*	mg/L	0.2	1	07/13/21 11:51	jlw
Magnesium, total (3050)	M6010D ICP	100	960			mg/Kg	20	100	07/13/21 0:12	jlw
Manganese (1312)	M6010D ICP	1	0.013	B	*	mg/L	0.01	0.05	07/13/21 11:51	jlw
Manganese, total (3050)	M6010D ICP	100	181		*	mg/Kg	1	5	07/13/21 0:12	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 10:12	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	3.71	B	*	ng/g	3.06	15.3	06/30/21 14:45	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/13/21 11:51	jlw
Molybdenum, total (3050)	M6010D ICP	100	<2	U		mg/Kg	2	10	07/13/21 0:12	jlw
Nickel (1312)	M6020B ICP-MS	1	0.00058	B	*	mg/L	0.0004	0.001	07/12/21 20:27	bsu
Nickel, total (3050)	M6020B ICP-MS	500	2.29		*	mg/Kg	0.2	0.5	07/14/21 12:46	mfm
Selenium (1312)	M6020B ICP-MS	1	0.00011	B	*	mg/L	0.0001	0.00025	07/12/21 20:27	bsu
Selenium, total (3050)	M6020B ICP-MS	500	0.141		*	mg/Kg	0.05	0.125	07/14/21 12:46	mfm
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/12/21 20:27	bsu
Thallium, total (3050)	M6020B ICP-MS	500	0.0621	B		mg/Kg	0.05	0.25	07/14/21 12:46	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/13/21 11:51	jlw
Zinc, total (3050)	M6010D ICP	100	15.8			mg/Kg	2	5	07/13/21 0:12	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-14

ACZ Sample ID: **L66691-14**

Date Sampled: 06/09/21 09:18

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.3	B	*	%	0.1	0.5	06/30/21 11:16	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	<0.1	U	*	%	0.1	0.5	06/30/21 11:16	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.3	B	*	%	0.1	0.5	06/30/21 11:16	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.206		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.7		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.3		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.9		*	%	0.1	0.5	06/27/21 20:17	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 10:23	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 9:48	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 13:32	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 13:32	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:21	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 13:18	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 13:18	jpb
Synthetic Precip. Leaching Procedure	M1312								07/07/21 21:15	zln/gkh

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-15

ACZ Sample ID: **L66691-15**

Date Sampled: 06/09/21 10:30

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP								07/12/21 14:07	jlw
Total Hot Plate Digestion	M3010A ICP-MS								07/10/21 13:15	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.680		*	mg/L	0.05	0.25	07/13/21 11:59	jlw
Aluminum, total (3050)	M6010D ICP	100	2380		*	mg/Kg	5	25	07/13/21 0:16	jlw
Antimony (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.002	07/12/21 20:31	bsu
Antimony, total (3050)	M6020B ICP-MS	500	<0.2	U	*	mg/Kg	0.2	1	07/14/21 12:55	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00048	B	*	mg/L	0.0002	0.001	07/12/21 20:31	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	2.43		*	mg/Kg	0.1	0.5	07/14/21 12:55	mfm
Cadmium (1312)	M6020B ICP-MS	1	<0.00005	U	*	mg/L	0.00005	0.00025	07/12/21 20:31	bsu
Cadmium, total (3050)	M6020B ICP-MS	500	0.0931	B		mg/Kg	0.025	0.125	07/14/21 12:55	mfm
Calcium (1312)	M6010D ICP	1	2.42			mg/L	0.1	0.5	07/13/21 11:59	jlw
Calcium, total (3050)	M6010D ICP	100	1050		*	mg/Kg	10	50	07/13/21 0:16	jlw
Copper (1312)	M6020B ICP-MS	1	0.00432		*	mg/L	0.0008	0.002	07/12/21 20:31	bsu
Copper, total (3050)	M6020B ICP-MS	500	8.58		*	mg/Kg	0.4	1	07/14/21 12:55	mfm
Iron (1312)	M6010D ICP	1	0.414		*	mg/L	0.06	0.15	07/13/21 11:59	jlw
Iron, total (3050)	M6010D ICP	100	5280		*	mg/Kg	6	15	07/13/21 0:16	jlw
Lead (1312)	M6020B ICP-MS	1	0.00049	B	*	mg/L	0.0001	0.0005	07/12/21 20:31	bsu
Lead, total (3050)	M6020B ICP-MS	500	3.61		*	mg/Kg	0.05	0.25	07/14/21 12:55	mfm
Magnesium (1312)	M6010D ICP	1	0.47	B	*	mg/L	0.2	1	07/13/21 11:59	jlw
Magnesium, total (3050)	M6010D ICP	100	618			mg/Kg	20	100	07/13/21 0:16	jlw
Manganese (1312)	M6010D ICP	1	0.011	B	*	mg/L	0.01	0.05	07/13/21 11:59	jlw
Manganese, total (3050)	M6010D ICP	100	109		*	mg/Kg	1	5	07/13/21 0:16	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 10:16	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	3.27	B	*	ng/g	3.15	15.75	06/30/21 14:54	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/13/21 11:59	jlw
Molybdenum, total (3050)	M6010D ICP	100	<2	U		mg/Kg	2	10	07/13/21 0:16	jlw
Nickel (1312)	M6020B ICP-MS	1	0.00068	B	*	mg/L	0.0004	0.001	07/12/21 20:31	bsu
Nickel, total (3050)	M6020B ICP-MS	500	1.43		*	mg/Kg	0.2	0.5	07/14/21 12:55	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/12/21 20:31	bsu
Selenium, total (3050)	M6020B ICP-MS	500	<0.05	U	*	mg/Kg	0.05	0.125	07/15/21 17:20	bsu
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/12/21 20:31	bsu
Thallium, total (3050)	M6020B ICP-MS	500	<0.05	U		mg/Kg	0.05	0.25	07/14/21 12:55	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/13/21 11:59	jlw
Zinc, total (3050)	M6010D ICP	100	11.5			mg/Kg	2	5	07/13/21 0:16	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-15

ACZ Sample ID: **L66691-15**

Date Sampled: 06/09/21 10:30

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.3	B	*	%	0.1	0.5	06/30/21 11:23	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	<0.1	U	*	%	0.1	0.5	06/30/21 11:23	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.3	B	*	%	0.1	0.5	06/30/21 11:23	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.402		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.6		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.2		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.9		*	%	0.1	0.5	06/28/21 0:31	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 10:26	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 9:54	jpb
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 14:21	mep
Digestion - Hot Plate	M3050B ICP								07/09/21 14:21	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:22	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 13:24	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 13:24	jpb
Synthetic Precip. Leaching Procedure	M1312								07/07/21 23:19	zln/gkh

Arizona license number: AZ0102

Hudbay Minerals

Project ID:

Sample ID: D2-22

ACZ Sample ID: **L66691-16**

Date Sampled: 06/09/21 12:09

Date Received: 06/23/21

Sample Matrix: Soil

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP-MS								07/10/21 13:15	mfm
Total Hot Plate Digestion	M3010A ICP								07/12/21 14:28	jlw

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (1312)	M6010D ICP	1	0.667		*	mg/L	0.05	0.25	07/13/21 12:11	jlw
Aluminum, total (3050)	M6010D ICP	101	2510		*	mg/Kg	5.05	25.3	07/13/21 0:20	jlw
Antimony (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.002	07/12/21 20:33	bsu
Antimony, total (3050)	M6020B ICP-MS	505	<0.202	U	*	mg/Kg	0.202	1.01	07/14/21 12:56	mfm
Arsenic (1312)	M6020B ICP-MS	1	0.00037	B	*	mg/L	0.0002	0.001	07/12/21 20:33	bsu
Arsenic, total (3050)	M6020B ICP-MS	505	1.49		*	mg/Kg	0.101	0.505	07/14/21 12:56	mfm
Cadmium (1312)	M6020B ICP-MS	1	<0.00005	U	*	mg/L	0.00005	0.00025	07/12/21 20:33	bsu
Cadmium, total (3050)	M6020B ICP-MS	505	0.0827	B		mg/Kg	0.0253	0.126	07/14/21 12:56	mfm
Calcium (1312)	M6010D ICP	1	2.59			mg/L	0.1	0.5	07/13/21 12:11	jlw
Calcium, total (3050)	M6010D ICP	101	1310		*	mg/Kg	10.1	50.5	07/13/21 0:20	jlw
Copper (1312)	M6020B ICP-MS	1	0.00508		*	mg/L	0.0008	0.002	07/12/21 20:33	bsu
Copper, total (3050)	M6020B ICP-MS	505	23.8		*	mg/Kg	0.404	1.01	07/14/21 12:56	mfm
Iron (1312)	M6010D ICP	1	0.461		*	mg/L	0.06	0.15	07/13/21 12:11	jlw
Iron, total (3050)	M6010D ICP	101	9930		*	mg/Kg	6.06	15.2	07/13/21 0:20	jlw
Lead (1312)	M6020B ICP-MS	1	0.00059		*	mg/L	0.0001	0.0005	07/12/21 20:33	bsu
Lead, total (3050)	M6020B ICP-MS	505	3.01		*	mg/Kg	0.0505	0.253	07/14/21 12:56	mfm
Magnesium (1312)	M6010D ICP	1	0.34	B	*	mg/L	0.2	1	07/13/21 12:11	jlw
Magnesium, total (3050)	M6010D ICP	101	711			mg/Kg	20.2	101	07/13/21 0:20	jlw
Manganese (1312)	M6010D ICP	1	<0.01	U	*	mg/L	0.01	0.05	07/13/21 12:11	jlw
Manganese, total (3050)	M6010D ICP	101	92.3		*	mg/Kg	1.01	5.05	07/13/21 0:20	jlw
Mercury (1312)	M7470A CVAA	1	<0.0002	U	*	mg/L	0.0002	0.001	07/13/21 10:17	mlh
Mercury by Direct Combustion AA	M7473 CVAAS	1	5.85	B	*	ng/g	3.16	15.8	06/30/21 15:03	mlh
Molybdenum (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.1	07/13/21 12:11	jlw
Molybdenum, total (3050)	M6010D ICP	101	<2.02	U		mg/Kg	2.02	10.1	07/13/21 0:20	jlw
Nickel (1312)	M6020B ICP-MS	1	<0.0004	U	*	mg/L	0.0004	0.001	07/12/21 20:33	bsu
Nickel, total (3050)	M6020B ICP-MS	505	1.35		*	mg/Kg	0.202	0.505	07/14/21 12:56	mfm
Selenium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.00025	07/12/21 20:33	bsu
Selenium, total (3050)	M6020B ICP-MS	505	0.0915	B	*	mg/Kg	0.0505	0.126	07/15/21 17:24	bsu
Thallium (1312)	M6020B ICP-MS	1	<0.0001	U	*	mg/L	0.0001	0.0005	07/12/21 20:33	bsu
Thallium, total (3050)	M6020B ICP-MS	505	<0.0505	U		mg/Kg	0.0505	0.253	07/14/21 12:56	mfm
Zinc (1312)	M6010D ICP	1	<0.02	U	*	mg/L	0.02	0.05	07/13/21 12:11	jlw
Zinc, total (3050)	M6010D ICP	101	11.0			mg/Kg	2.02	5.05	07/13/21 0:20	jlw

Hudbay Minerals

Project ID:

Sample ID: D2-22

ACZ Sample ID: **L66691-16**

Date Sampled: 06/09/21 12:09

Date Received: 06/23/21

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.7		*	%	0.1	0.5	06/30/21 11:30	jpb
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	1	0.1	B	*	%	0.1	0.5	06/30/21 11:30	jpb
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	1	0.6		*	%	0.1	0.5	06/30/21 11:30	jpb
Conductivity @25C	SM2510B									
Conductivity		1	0.236		*	mmhos/cm	0.001	0.01	07/15/21 0:00	ms/gkh
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
Temperature		1	22.4		*	C	0.1	0.1	07/15/21 0:00	ms/gkh
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	2000		*	um			07/15/21 0:00	ms/gkh
pH		1	7.1		*	units	0.1	0.1	07/15/21 0:00	ms/gkh
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	06/28/21 4:45	jpb
Sulfur, total	ASTM D-4239-85C, LECO Furnace	1	<0.01	U	*	%	0.01	0.1	06/30/21 10:29	jpb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972				*				06/25/21 10:00	jpb
Digestion - Hot Plate	M3050B ICP								07/09/21 14:38	mep
Digestion - Hot Plate	M3050B ICP-MS								07/09/21 14:38	mep
Saturated Paste Extraction	USDA No. 60 (2)				*				07/12/21 18:24	ms/mlp
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2				*				06/28/21 13:30	jpb
Sieve-250 um (60 mesh)	ASA No.9, 15-4.2.2				*				06/28/21 13:30	jpb
Synthetic Precip. Leaching Procedure	M1312								07/08/21 0:22	zln/gkh

Arizona license number: AZ0102



Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>MDL</i>	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>AS</i>	Analytical Spike (Post Digestion)	<i>LCSWD</i>	Laboratory Control Sample - Water Duplicate
<i>ASD</i>	Analytical Spike (Post Digestion) Duplicate	<i>LFB</i>	Laboratory Fortified Blank
<i>CCB</i>	Continuing Calibration Blank	<i>LFM</i>	Laboratory Fortified Matrix
<i>CCV</i>	Continuing Calibration Verification standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>ICB</i>	Initial Calibration Blank	<i>MS</i>	Matrix Spike
<i>ICV</i>	Initial Calibration Verification standard	<i>MSD</i>	Matrix Spike Duplicate
<i>ICSAB</i>	Inter-element Correction Standard - A plus B solutions	<i>PBS</i>	Prep Blank - Soil
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBW</i>	Prep Blank - Water
<i>LCSSD</i>	Laboratory Control Sample - Soil Duplicate	<i>PQV</i>	Practical Quantitation Verification standard
<i>LCSW</i>	Laboratory Control Sample - Water	<i>SDL</i>	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
- (4) EPA SW-846. Test Methods for Evaluating Solid Waste.
- (5) Standard Methods for the Examination of Water and Wastewater.

Comments

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
- (5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:

<https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Aluminum (1312)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522455													
WG522455ICV	ICV	07/02/21 13:42	II210620-2	2		1.985	mg/L	99	90	110			
WG522455ICB	ICB	07/02/21 13:46				U	mg/L		-0.15	0.15			
WG522152PBS	PBS	07/02/21 14:10				U	mg/L		-0.15	0.15			
WG522152LFB1	LFB	07/02/21 14:14	II210622-2	1.0013		.985	mg/L	98	80	120			
L66691-02MS	MS	07/02/21 14:25	II210622-2	1.0013	.153	1.127	mg/L	97	75	125			
L66691-02MSD	MSD	07/02/21 14:29	II210622-2	1.0013	.153	1.127	mg/L	97	75	125	0	20	
L66694-17DUP	DUP	07/02/21 15:16			.063	.057	mg/L				10	20	RA

WG522593

WG522593ICV	ICV	07/08/21 0:29	II210620-2	2		1.975	mg/L	99	90	110			
WG522593ICB	ICB	07/08/21 0:33				U	mg/L		-0.15	0.15			
WG522267PBS	PBS	07/08/21 0:56				U	mg/L		-0.15	0.15			
WG522267LFB1	LFB	07/08/21 1:00	II210622-2	1.0013		1.011	mg/L	101	80	120			
L66691-04MS	MS	07/08/21 1:08	II210622-2	1.0013	.392	1.41	mg/L	102	75	125			
L66691-04MSD	MSD	07/08/21 1:11	II210622-2	1.0013	.392	1.471	mg/L	108	75	125	4	20	
L66691-06DUP	DUP	07/08/21 1:23			.433	.508	mg/L				16	20	RA

WG523072

WG523072ICV	ICV	07/13/21 10:56	II210712-1	2		1.959	mg/L	98	90	110			
WG523072ICB	ICB	07/13/21 11:00				U	mg/L		-0.15	0.15			
WG522653PBS	PBS	07/13/21 11:24				.1	mg/L		-0.15	0.15			
WG522653LFB1	LFB	07/13/21 11:28	II210708-3	1.0008		1.048	mg/L	105	80	120			
L66691-11MS	MS	07/13/21 11:36	II210708-3	1.0008	.65	1.629	mg/L	98	75	125			
L66691-11MSD	MSD	07/13/21 11:40	II210708-3	1.0008	.65	1.642	mg/L	99	75	125	1	20	
L66691-14DUP	DUP	07/13/21 11:55			.755	.898	mg/L				17	20	

Aluminum, total (3050)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522995													
WG522995ICV	ICV	07/12/21 22:04	II210712-1	2		1.962	mg/L	98	90	110			
WG522995ICB	ICB	07/12/21 22:07				U	mg/L		-0.15	0.15			
WG522807PBS	PBS	07/12/21 22:32				U	mg/Kg		-15	15			
WG522807LCSS2	LCSS	07/12/21 22:43	PCN63584	8130		8758	mg/Kg		3920	12300			
WG522807LCSSD2	LCSSD	07/12/21 22:47	PCN63584	8130		8633	mg/Kg		3920	12300	1	20	
L66691-03MS	MS	07/12/21 23:18	II210708-3	101.0808	2340	3654.18	mg/Kg	1300	75	125			M3
L66691-03MSD	MSD	07/12/21 23:22	II210708-3	101.0808	2340	3675.39	mg/Kg	1321	75	125	1	20	M3

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Antimony (1312)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522771													
WG522771ICV	ICV	07/08/21 17:12	MS210630-2	.0201		.02024	mg/L	101	90	110			
WG522771ICB	ICB	07/08/21 17:14				U	mg/L		-0.0012	0.0012			
WG522152PBS	PBS	07/08/21 17:23				U	mg/L		-0.0012	0.0012			
WG522152LFB2	LFB	07/08/21 17:25	MS210702-2	.01		.00991	mg/L	99	80	120			
L66691-03MS	MS	07/08/21 17:32	MS210702-2	.01	U	.00992	mg/L	99	75	125			
L66691-03MSD	MSD	07/08/21 17:34	MS210702-2	.01	U	.01002	mg/L	100	75	125	1	20	
L66694-17DUP	DUP	07/08/21 17:54			.0009	.00089	mg/L				1	20	RA
WG522782													
WG522782ICV	ICV	07/08/21 20:43	MS210630-2	.0201		.01994	mg/L	99	90	110			
WG522782ICB	ICB	07/08/21 20:45				U	mg/L		-0.0012	0.0012			
WG522267PBS	PBS	07/08/21 20:55				U	mg/L		-0.0012	0.0012			
WG522267LFB2	LFB	07/08/21 20:57	MS210702-2	.01		.00991	mg/L	99	80	120			
L66691-05MS	MS	07/08/21 21:02	MS210702-2	.01	.00381	.01363	mg/L	98	75	125			
L66691-05MSD	MSD	07/08/21 21:04	MS210702-2	.01	.00381	.01379	mg/L	100	75	125	1	20	
L66691-06DUP	DUP	07/08/21 21:12			.00145	.00108	mg/L				29	20	RA
WG522817													
WG522817ICV	ICV	07/09/21 10:20	MS210630-2	.0201		.02014	mg/L	100	90	110			
WG522817ICB	ICB	07/09/21 10:22				U	mg/L		-0.0012	0.0012			
WG522152PBS	PBS	07/09/21 10:31				U	mg/L		-0.0012	0.0012			
WG522152LFB2	LFB	07/09/21 10:33	MS210702-2	.01		.00944	mg/L	94	80	120			
L66691-03MS	MS	07/09/21 10:40	MS210702-2	.01	U	.00947	mg/L	95	75	125			
L66691-03MSD	MSD	07/09/21 10:42	MS210702-2	.01	U	.00967	mg/L	97	75	125	2	20	
L66694-17DUP	DUP	07/09/21 10:53			.00086	.00085	mg/L				1	20	RA
WG522267PBS	PBS	07/09/21 10:55				U	mg/L		-0.0012	0.0012			
WG522267LFB2	LFB	07/09/21 10:57	MS210702-2	.01		.00958	mg/L	96	80	120			
L66691-05MS	MS	07/09/21 11:02	MS210702-2	.01	.00367	.01289	mg/L	92	75	125			
L66691-05MSD	MSD	07/09/21 11:04	MS210702-2	.01	.00367	.01318	mg/L	95	75	125	2	20	
L66691-06DUP	DUP	07/09/21 11:11			.0014	.00104	mg/L				30	20	RA
WG523021													
WG523021ICV	ICV	07/12/21 20:00	MS210630-2	.0201		.01991	mg/L	99	90	110			
WG523021ICB	ICB	07/12/21 20:01				U	mg/L		-0.0012	0.0012			
WG522653PBS	PBS	07/12/21 20:11				U	mg/L		-0.0012	0.0012			
WG522653LFB2	LFB	07/12/21 20:13	MS210702-2	.01		.01021	mg/L	102	80	120			
L66691-12MS	MS	07/12/21 20:18	MS210702-2	.01	U	.01022	mg/L	102	75	125			
L66691-12MSD	MSD	07/12/21 20:20	MS210702-2	.01	U	.01019	mg/L	102	75	125	0	20	
L66691-14DUP	DUP	07/12/21 20:29			U	U	mg/L				0	20	RA

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Antimony, total (3050)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG523111													
WG523111ICV	ICV	07/14/21 11:59	MS210630-2	.0201		.01913	mg/L	95	90	110			
WG523111ICB	ICB	07/14/21 12:01				U	mg/L		-0.0012	0.0012			
WG522807PBS	PBS	07/14/21 12:11				U	mg/Kg		-0.6	0.6			
WG522807LCSS2	LCSS	07/14/21 12:13	PCN63584	134		84.9362	mg/Kg		4.56	264			
WG522807LCSSD2	LCSSD	07/14/21 12:15	PCN63584	134		85.01476	mg/Kg		4.56	264	0	20	
L66691-14MS	MS	07/14/21 12:47	MS210521-6	5	.297	.98323	mg/Kg	14	75	125			M2
L66691-14MSD	MSD	07/14/21 12:49	MS210521-6	5	.297	1.00976	mg/Kg	14	75	125	3	20	M2

WG523327

WG523327ICV	ICV	07/15/21 16:49	MS210630-2	.0201		.02037	mg/L	101	90	110			
WG523327ICB	ICB	07/15/21 16:51				U	mg/L		-0.0012	0.0012			
WG522807PBS	PBS	07/15/21 17:00				U	mg/Kg		-0.6	0.6			
WG522807LCSS2	LCSS	07/15/21 17:02	PCN63584	134		82.1222	mg/Kg		4.56	264			
WG522807LCSSD2	LCSSD	07/15/21 17:03	PCN63584	134		80.85296	mg/Kg		4.56	264	2	20	
L66691-14MS	MS	07/15/21 17:16	MS210521-6	5	.292	.94666	mg/Kg	13	75	125			M2
L66691-14MSD	MSD	07/15/21 17:18	MS210521-6	5	.292	.97019	mg/Kg	14	75	125	2	20	M2

Arsenic (1312)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522771													
WG522771ICV	ICV	07/08/21 17:12	MS210630-2	.05		.04979	mg/L	100	90	110			
WG522771ICB	ICB	07/08/21 17:14				U	mg/L		-0.0006	0.0006			
WG522152PBS	PBS	07/08/21 17:23				U	mg/L		-0.0006	0.0006			
WG522152LFB2	LFB	07/08/21 17:25	MS210702-2	.05005		.05064	mg/L	101	80	120			
L66691-03MS	MS	07/08/21 17:32	MS210702-2	.05005	.00071	.05116	mg/L	101	75	125			
L66691-03MSD	MSD	07/08/21 17:34	MS210702-2	.05005	.00071	.05128	mg/L	101	75	125	0	20	
L66694-17DUP	DUP	07/08/21 17:54			.00092	.00091	mg/L				1	20	RA

WG522782

WG522782ICV	ICV	07/08/21 20:43	MS210630-2	.05		.05147	mg/L	103	90	110			
WG522782ICB	ICB	07/08/21 20:45				U	mg/L		-0.0006	0.0006			
WG522267PBS	PBS	07/08/21 20:55				U	mg/L		-0.0006	0.0006			
WG522267LFB2	LFB	07/08/21 20:57	MS210702-2	.05005		.05025	mg/L	100	80	120			
L66691-05MS	MS	07/08/21 21:02	MS210702-2	.05005	.00212	.05215	mg/L	100	75	125			
L66691-05MSD	MSD	07/08/21 21:04	MS210702-2	.05005	.00212	.05212	mg/L	100	75	125	0	20	
L66691-06DUP	DUP	07/08/21 21:12			.00127	.00107	mg/L				17	20	RA

WG523021

WG523021ICV	ICV	07/12/21 20:00	MS210630-2	.05		.04937	mg/L	99	90	110			
WG523021ICB	ICB	07/12/21 20:01				U	mg/L		-0.0006	0.0006			
WG522653PBS	PBS	07/12/21 20:11				U	mg/L		-0.0006	0.0006			
WG522653LFB2	LFB	07/12/21 20:13	MS210702-2	.05005		.05085	mg/L	102	80	120			
L66691-12MS	MS	07/12/21 20:18	MS210702-2	.05005	.00046	.0509	mg/L	101	75	125			
L66691-12MSD	MSD	07/12/21 20:20	MS210702-2	.05005	.00046	.0521	mg/L	103	75	125	2	20	
L66691-14DUP	DUP	07/12/21 20:29			.00052	.00046	mg/L				12	20	RA

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Arsenic, total (3050)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG523111													
WG523111ICV	ICV	07/14/21 11:59	MS210630-2	.05		.046	mg/L	92	90	110			
WG523111ICB	ICB	07/14/21 12:01				U	mg/L		-0.0006	0.0006			
WG522807PBS	PBS	07/14/21 12:11				U	mg/Kg		-0.3	0.3			
WG522807LCSS2	LCSS	07/14/21 12:13	PCN63584	156		143.35857	mg/Kg		129	183			
WG522807LCSSD2	LCSSD	07/14/21 12:15	PCN63584	156		143.50142	mg/Kg		129	183	0	20	
L66691-14MS	MS	07/14/21 12:47	MS210521-6	25.025	1.89	23.15456	mg/Kg	85	75	125			
L66691-14MSD	MSD	07/14/21 12:49	MS210521-6	25.025	1.89	22.27338	mg/Kg	81	75	125	4	20	

Cadmium (1312)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522771													
WG522771ICV	ICV	07/08/21 17:12	MS210630-2	.05		.051429	mg/L	103	90	110			
WG522771ICB	ICB	07/08/21 17:14				U	mg/L		-0.00015	0.00015			
WG522152PBS	PBS	07/08/21 17:23				U	mg/L		-0.00015	0.00015			
WG522152LFB2	LFB	07/08/21 17:25	MS210702-2	.05005		.049208	mg/L	98	80	120			
L66691-03MS	MS	07/08/21 17:32	MS210702-2	.05005	.000124	.048698	mg/L	97	75	125			
L66691-03MSD	MSD	07/08/21 17:34	MS210702-2	.05005	.000124	.049028	mg/L	98	75	125	1	20	
L66691-17DUP	DUP	07/08/21 17:54			U	U	mg/L				0	20	RA

WG522782

WG522782ICV	ICV	07/08/21 20:43	MS210630-2	.05		.050227	mg/L	100	90	110			
WG522782ICB	ICB	07/08/21 20:45				U	mg/L		-0.00015	0.00015			
WG522267PBS	PBS	07/08/21 20:55				U	mg/L		-0.00015	0.00015			
WG522267LFB2	LFB	07/08/21 20:57	MS210702-2	.05005		.0481	mg/L	96	80	120			
L66691-05MS	MS	07/08/21 21:02	MS210702-2	.05005	.000095	.048459	mg/L	97	75	125			
L66691-05MSD	MSD	07/08/21 21:04	MS210702-2	.05005	.000095	.048721	mg/L	97	75	125	1	20	
L66691-06DUP	DUP	07/08/21 21:12			.000091	.000078	mg/L				15	20	RA

WG522817

WG522817ICV	ICV	07/09/21 10:20	MS210630-2	.05		.050382	mg/L	101	90	110			
WG522817ICB	ICB	07/09/21 10:22				U	mg/L		-0.00015	0.00015			
WG522152PBS	PBS	07/09/21 10:31				U	mg/L		-0.00015	0.00015			
WG522152LFB2	LFB	07/09/21 10:33	MS210702-2	.05005		.046324	mg/L	93	80	120			
L66691-03MS	MS	07/09/21 10:40	MS210702-2	.05005	U	.046673	mg/L	93	75	125			
L66691-03MSD	MSD	07/09/21 10:42	MS210702-2	.05005	U	.046877	mg/L	94	75	125	0	20	
L66691-17DUP	DUP	07/09/21 10:53			U	U	mg/L				0	20	RA
WG522267PBS	PBS	07/09/21 10:55				U	mg/L		-0.00015	0.00015			
WG522267LFB2	LFB	07/09/21 10:57	MS210702-2	.05005		.046644	mg/L	93	80	120			
L66691-05MS	MS	07/09/21 11:02	MS210702-2	.05005	.000087	.046625	mg/L	93	75	125			
L66691-05MSD	MSD	07/09/21 11:04	MS210702-2	.05005	.000087	.047069	mg/L	94	75	125	1	20	
L66691-06DUP	DUP	07/09/21 11:11			.000083	.000079	mg/L				5	20	RA

WG523021

WG523021ICV	ICV	07/12/21 20:00	MS210630-2	.05		.049376	mg/L	99	90	110			
WG523021ICB	ICB	07/12/21 20:01				U	mg/L		-0.00015	0.00015			
WG522653PBS	PBS	07/12/21 20:11				U	mg/L		-0.00015	0.00015			
WG522653LFB2	LFB	07/12/21 20:13	MS210702-2	.05005		.048451	mg/L	97	80	120			
L66691-12MS	MS	07/12/21 20:18	MS210702-2	.05005	U	.048611	mg/L	97	75	125			
L66691-12MSD	MSD	07/12/21 20:20	MS210702-2	.05005	U	.049231	mg/L	98	75	125	1	20	
L66691-14DUP	DUP	07/12/21 20:29			U	U	mg/L				0	20	RA

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Cadmium, total (3050)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG523111													
WG523111ICV	ICV	07/14/21 11:59	MS210630-2	.05		.048375	mg/L	97	90	110			
WG523111ICB	ICB	07/14/21 12:01				U	mg/L		-0.00015	0.00015			
WG522807PBS	PBS	07/14/21 12:11				U	mg/Kg		-0.075	0.075			
WG522807LCSS2	LCSS	07/14/21 12:13	PCN63584	137		130.97070	mg/Kg		113	160			
WG522807LCSSD2	LCSSD	07/14/21 12:15	PCN63584	137		132.99588	mg/Kg		113	160	2	20	
L66691-14MS	MS	07/14/21 12:47	MS210521-6	25.025	.13	24.033536	mg/Kg	96	75	125			
L66691-14MSD	MSD	07/14/21 12:49	MS210521-6	25.025	.13	24.515268	mg/Kg	97	75	125	2	20	

Calcium (1312)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522455													
WG522455ICV	ICV	07/02/21 13:42	II210620-2	100		100.3	mg/L	100	90	110			
WG522455ICB	ICB	07/02/21 13:46				U	mg/L		-0.3	0.3			
WG522152PBS	PBS	07/02/21 14:10				U	mg/L		-0.3	0.3			
WG522152LFB1	LFB	07/02/21 14:14	II210622-2	67.98753		67.69	mg/L	100	80	120			
L66691-02MS	MS	07/02/21 14:25	II210622-2	67.98753	6.79	74.37	mg/L	99	75	125			
L66691-02MSD	MSD	07/02/21 14:29	II210622-2	67.98753	6.79	74.58	mg/L	100	75	125	0	20	
L66691-17DUP	DUP	07/02/21 15:16			13.4	13.18	mg/L				2	20	
WG522593													
WG522593ICV	ICV	07/08/21 0:29	II210620-2	100		100.9	mg/L	101	90	110			
WG522593ICB	ICB	07/08/21 0:33				U	mg/L		-0.3	0.3			
WG522267PBS	PBS	07/08/21 0:56				U	mg/L		-0.3	0.3			
WG522267LFB1	LFB	07/08/21 1:00	II210622-2	67.98753		70.09	mg/L	103	80	120			
L66691-04MS	MS	07/08/21 1:08	II210622-2	67.98753	10.6	80.72	mg/L	103	75	125			
L66691-04MSD	MSD	07/08/21 1:11	II210622-2	67.98753	10.6	80.88	mg/L	103	75	125	0	20	
L66691-06DUP	DUP	07/08/21 1:23			9.56	9.79	mg/L				2	20	
WG523072													
WG523072ICV	ICV	07/13/21 10:56	II210712-1	100		99.72	mg/L	100	90	110			
WG523072ICB	ICB	07/13/21 11:00				U	mg/L		-0.3	0.3			
WG522653PBS	PBS	07/13/21 11:24				U	mg/L		-0.3	0.3			
WG522653LFB1	LFB	07/13/21 11:28	II210708-3	67.99734		69.5	mg/L	102	80	120			
L66691-11MS	MS	07/13/21 11:36	II210708-3	67.99734	1.67	69.32	mg/L	99	75	125			
L66691-11MSD	MSD	07/13/21 11:40	II210708-3	67.99734	1.67	69.96	mg/L	100	75	125	1	20	
L66691-14DUP	DUP	07/13/21 11:55			1.53	1.34	mg/L				13	20	

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Calcium, total (3050)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522995													
WG522995ICV	ICV	07/12/21 22:04	II210712-1	100		99.87	mg/L	100	90	110			
WG522995ICB	ICB	07/12/21 22:07				U	mg/L		-0.3	0.3			
WG522807PBS	PBS	07/12/21 22:32				U	mg/Kg		-30	30			
WG522807LCSS2	LCSS	07/12/21 22:43	PCN63584	4760		4548	mg/Kg		3890	5640			
WG522807LCSSD2	LCSSD	07/12/21 22:47	PCN63584	4760		4601	mg/Kg		3890	5640	1	20	
L66691-03MS	MS	07/12/21 23:18	II210708-3	6867.73134	58000	69841.5	mg/Kg	172	75	125			M3
L66691-03MSD	MSD	07/12/21 23:22	II210708-3	6867.73134	58000	60529.3	mg/Kg	37	75	125	14	20	M3

WG523068

WG523068ICV	ICV	07/13/21 13:13	II210712-1	100		98.64	mg/L	99	90	110			
WG523068ICB	ICB	07/13/21 13:17				U	mg/L		-0.3	0.3			
WG522807PBS	PBS	07/13/21 13:41				U	mg/Kg		-30	30			
WG522807LCSS2	LCSS	07/13/21 13:53	PCN63584	4760		4526	mg/Kg		3890	5640			
WG522807LCSSD2	LCSSD	07/13/21 13:56	PCN63584	4760		4571	mg/Kg		3890	5640	1	20	
L66691-03MS	MS	07/13/21 14:27	II2XSOIL	6868.2828	59500	72376.6	mg/Kg	187	75	125			M3
L66691-03MSD	MSD	07/13/21 14:30	II2XSOIL	6868.2828	59500	62276.6	mg/Kg	40	75	125	15	20	M3

Carbon, total (TC)

ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522136													
WG522136PBS	PBS	06/30/21 9:30				U	%		-0.3	0.3			
WG522136LCSS	LCSS	06/30/21 9:36	PCN61786	4.35		4.3	%	99	80	120			
L66691-02DUP	DUP	06/30/21 9:56			.1	.1	%				0	20	RA

Carbon, total inorganic (TIC)

ASA No. 9 29-2.2.4 (calc TC - TOC)

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522136													
WG522136PBS	PBS	06/30/21 9:30				U	%		-0.3	0.3			
L66691-02DUP	DUP	06/30/21 9:56			U	U	%				0	20	RA

Carbon, total organic (TOC)

ASA No.9 29-2.2.4 Combustion/IR

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522136													
WG522136PBS	PBS	06/30/21 9:30				U	%		-0.3	0.3			
L66691-02DUP	DUP	06/30/21 9:56			.2	.1	%				67	20	RA

Conductivity @25C

SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG523136													
L66691-04DUP	DUP	07/15/21 13:11			.233	.234	mmhos/cm				0	20	

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Copper (1312)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522771													
WG522771ICV	ICV	07/08/21 17:12	MS210630-2	.05		.05172	mg/L	103	90	110			
WG522771ICB	ICB	07/08/21 17:14				U	mg/L		-0.0024	0.0024			
WG522152PBS	PBS	07/08/21 17:23				.002	mg/L		-0.0024	0.0024			
WG522152LFB2	LFB	07/08/21 17:25	MS210702-2	.05		.05299	mg/L	106	80	120			
L66691-03MS	MS	07/08/21 17:32	MS210702-2	.05	.00823	.05799	mg/L	100	75	125			
L66691-03MSD	MSD	07/08/21 17:34	MS210702-2	.05	.00823	.0576	mg/L	99	75	125	1	20	
L66694-17DUP	DUP	07/08/21 17:54			.106	.09038	mg/L				16	20	

WG522817

WG522817ICV	ICV	07/09/21 10:20	MS210630-2	.05		.0513	mg/L	103	90	110			
WG522817ICB	ICB	07/09/21 10:22				U	mg/L		-0.0024	0.0024			
WG522152PBS	PBS	07/09/21 10:31				.00196	mg/L		-0.0024	0.0024			
WG522152LFB2	LFB	07/09/21 10:33	MS210702-2	.05		.05085	mg/L	102	80	120			
L66691-03MS	MS	07/09/21 10:40	MS210702-2	.05	.00653	.05508	mg/L	97	75	125			
L66691-03MSD	MSD	07/09/21 10:42	MS210702-2	.05	.00653	.05491	mg/L	97	75	125	0	20	
L66694-17DUP	DUP	07/09/21 10:53			.0987	.08315	mg/L				17	20	
WG522267PBS	PBS	07/09/21 10:55				.01088	mg/L		-0.0024	0.0024			B1
WG522267LFB2	LFB	07/09/21 10:57	MS210702-2	.05		.06049	mg/L	121	80	120			N1
L66691-05MS	MS	07/09/21 11:02	MS210702-2	.05	.0176	.06484	mg/L	94	75	125			
L66691-05MSD	MSD	07/09/21 11:04	MS210702-2	.05	.0176	.06604	mg/L	97	75	125	2	20	
L66691-06DUP	DUP	07/09/21 11:11			.0152	.01427	mg/L				6	20	

WG523021

WG523021ICV	ICV	07/12/21 20:00	MS210630-2	.05		.05046	mg/L	101	90	110			
WG523021ICB	ICB	07/12/21 20:01				U	mg/L		-0.0024	0.0024			
WG522653PBS	PBS	07/12/21 20:11				U	mg/L		-0.0024	0.0024			
WG522653LFB2	LFB	07/12/21 20:13	MS210702-2	.05		.05105	mg/L	102	80	120			
L66691-12MS	MS	07/12/21 20:18	MS210702-2	.05	.00596	.05551	mg/L	99	75	125			
L66691-12MSD	MSD	07/12/21 20:20	MS210702-2	.05	.00596	.05699	mg/L	102	75	125	3	20	
L66691-14DUP	DUP	07/12/21 20:29			.00382	.00319	mg/L				18	20	RA

Copper, total (3050)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG523111													
WG523111ICV	ICV	07/14/21 11:59	MS210630-2	.05		.04803	mg/L	96	90	110			
WG523111ICB	ICB	07/14/21 12:01				U	mg/L		-0.0024	0.0024			
WG522807PBS	PBS	07/14/21 12:11				U	mg/Kg		-1.2	1.2			
WG522807LCSS2	LCSS	07/14/21 12:13	PCN63584	54.9		51.46705	mg/Kg		46.1	63.6			
WG522807LCSSD2	LCSSD	07/14/21 12:15	PCN63584	54.9		51.03563	mg/Kg		46.1	63.6	1	20	
L66691-14MS	MS	07/14/21 12:47	MS210521-6	25	8.17	30.22364	mg/Kg	88	75	125			
L66691-14MSD	MSD	07/14/21 12:49	MS210521-6	25	8.17	29.98944	mg/Kg	87	75	125	1	20	

WG523327

WG523327ICV	ICV	07/15/21 16:49	MS210630-2	.05		.05207	mg/L	104	90	110			
WG523327ICB	ICB	07/15/21 16:51				U	mg/L		-0.0024	0.0024			
WG522807PBS	PBS	07/15/21 17:00				U	mg/Kg		-1.2	1.2			
WG522807LCSS2	LCSS	07/15/21 17:02	PCN63584	54.9		50.63138	mg/Kg		46.1	63.6			
WG522807LCSSD2	LCSSD	07/15/21 17:03	PCN63584	54.9		48.4177	mg/Kg		46.1	63.6	4	20	
L66691-14MS	MS	07/15/21 17:16	MS210521-6	25	9.03	32.85227	mg/Kg	95	75	125			
L66691-14MSD	MSD	07/15/21 17:18	MS210521-6	25	9.03	32.53367	mg/Kg	94	75	125	1	20	

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Iron (1312)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522455													
WG522455ICV	ICV	07/02/21 13:42	II210620-2	2		1.993	mg/L	100	90	110			
WG522455ICB	ICB	07/02/21 13:46				U	mg/L		-0.18	0.18			
WG522152PBS	PBS	07/02/21 14:10				U	mg/L		-0.18	0.18			
WG522152LFB1	LFB	07/02/21 14:14	II210622-2	1.0018		1.02	mg/L	102	80	120			
L66691-02MS	MS	07/02/21 14:25	II210622-2	1.0018	U	1.052	mg/L	105	75	125			
L66691-02MSD	MSD	07/02/21 14:29	II210622-2	1.0018	U	1.062	mg/L	106	75	125	1	20	
L66694-17DUP	DUP	07/02/21 15:16			.227	.21	mg/L				8	20	RA

WG522593

WG522593ICV	ICV	07/08/21 0:29	II210620-2	2		1.994	mg/L	100	90	110			
WG522593ICB	ICB	07/08/21 0:33				U	mg/L		-0.18	0.18			
WG522267PBS	PBS	07/08/21 0:56				U	mg/L		-0.18	0.18			
WG522267LFB1	LFB	07/08/21 1:00	II210622-2	1.0018		1.041	mg/L	104	80	120			
L66691-04MS	MS	07/08/21 1:08	II210622-2	1.0018	.137	1.154	mg/L	102	75	125			
L66691-04MSD	MSD	07/08/21 1:11	II210622-2	1.0018	.137	1.22	mg/L	108	75	125	6	20	
L66691-06DUP	DUP	07/08/21 1:23			.321	.332	mg/L				3	20	RA

WG523072

WG523072ICV	ICV	07/13/21 10:56	II210712-1	2		1.962	mg/L	98	90	110			
WG523072ICB	ICB	07/13/21 11:00				U	mg/L		-0.18	0.18			
WG522653PBS	PBS	07/13/21 11:24				U	mg/L		-0.18	0.18			
WG522653LFB1	LFB	07/13/21 11:28	II210708-3	1.0001		1.036	mg/L	104	80	120			
L66691-11MS	MS	07/13/21 11:36	II210708-3	1.0001	.417	1.367	mg/L	95	75	125			
L66691-11MSD	MSD	07/13/21 11:40	II210708-3	1.0001	.417	1.374	mg/L	96	75	125	1	20	
L66691-14DUP	DUP	07/13/21 11:55			.437	.513	mg/L				16	20	RA

Iron, total (3050)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522995													
WG522995ICV	ICV	07/12/21 22:04	II210712-1	2		1.973	mg/L	99	90	110			
WG522995ICB	ICB	07/12/21 22:07				U	mg/L		-0.18	0.18			
WG522807PBS	PBS	07/12/21 22:32				U	mg/Kg		-18	18			
WG522807LCSS2	LCSS	07/12/21 22:43	PCN63584	14100		14160	mg/Kg		8470	19700			
WG522807LCSSD2	LCSSD	07/12/21 22:47	PCN63584	14100		14390	mg/Kg		8470	19700	2	20	
L66691-03MS	MS	07/12/21 23:18	II210708-3	101.0101	8430	6712.46	mg/Kg	-1700	75	125			M3
L66691-03MSD	MSD	07/12/21 23:22	II210708-3	101.0101	8430	6572.07	mg/Kg	-1839	75	125	2	20	M3

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Lead (1312)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522782													
WG522782ICV	ICV	07/08/21 20:43	MS210630-2	.05		.04981	mg/L	100	90	110			
WG522782ICB	ICB	07/08/21 20:45				U	mg/L		-0.0003	0.0003			
WG522267PBS	PBS	07/08/21 20:55				.00062	mg/L		-0.0003	0.0003			B7
WG522267LFB2	LFB	07/08/21 20:57	MS210702-2	.05005		.04909	mg/L	98	80	120			
L66691-05MS	MS	07/08/21 21:02	MS210702-2	.05005	.0178	.06486	mg/L	94	75	125			
L66691-05MSD	MSD	07/08/21 21:04	MS210702-2	.05005	.0178	.06589	mg/L	96	75	125	2	20	
L66691-06DUP	DUP	07/08/21 21:12			.00802	.00633	mg/L				24	20	RD

WG522817

WG522817ICV	ICV	07/09/21 10:20	MS210630-2	.05		.04986	mg/L	100	90	110			
WG522817ICB	ICB	07/09/21 10:22				U	mg/L		-0.0003	0.0003			
WG522152PBS	PBS	07/09/21 10:31				.00016	mg/L		-0.0003	0.0003			
WG522152LFB2	LFB	07/09/21 10:33	MS210702-2	.05005		.04656	mg/L	93	80	120			
L66691-03MS	MS	07/09/21 10:40	MS210702-2	.05005	.00128	.04815	mg/L	94	75	125			
L66691-03MSD	MSD	07/09/21 10:42	MS210702-2	.05005	.00128	.04861	mg/L	95	75	125	1	20	
L66694-17DUP	DUP	07/09/21 10:53			.00107	.00071	mg/L				40	20	RD
WG522267PBS	PBS	07/09/21 10:55				.00059	mg/L		-0.0003	0.0003			B1
WG522267LFB2	LFB	07/09/21 10:57	MS210702-2	.05005		.04778	mg/L	95	80	120			
L66691-05MS	MS	07/09/21 11:02	MS210702-2	.05005	.0172	.06338	mg/L	92	75	125			
L66691-05MSD	MSD	07/09/21 11:04	MS210702-2	.05005	.0172	.0643	mg/L	94	75	125	1	20	
L66691-06DUP	DUP	07/09/21 11:11			.00775	.00613	mg/L				23	20	RD

WG523021

WG523021ICV	ICV	07/12/21 20:00	MS210630-2	.05		.04961	mg/L	99	90	110			
WG523021ICB	ICB	07/12/21 20:01				U	mg/L		-0.0003	0.0003			
WG522653PBS	PBS	07/12/21 20:11				U	mg/L		-0.0003	0.0003			
WG522653LFB2	LFB	07/12/21 20:13	MS210702-2	.05005		.04957	mg/L	99	80	120			
L66691-12MS	MS	07/12/21 20:18	MS210702-2	.05005	.00056	.05016	mg/L	99	75	125			
L66691-12MSD	MSD	07/12/21 20:20	MS210702-2	.05005	.00056	.05069	mg/L	100	75	125	1	20	
L66691-14DUP	DUP	07/12/21 20:29			.00121	.00088	mg/L				32	20	RD

Lead, total (3050)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG523111													
WG523111ICV	ICV	07/14/21 11:59	MS210630-2	.05		.04935	mg/L	99	90	110			
WG523111ICB	ICB	07/14/21 12:01				U	mg/L		-0.0003	0.0003			
WG522807PBS	PBS	07/14/21 12:11				U	mg/Kg		-0.15	0.15			
WG522807LCSS2	LCSS	07/14/21 12:13	PCN63584	130		124.81071	mg/Kg		107	152			
WG522807LCSSD2	LCSSD	07/14/21 12:15	PCN63584	130		125.81566	mg/Kg		107	152	1	20	
L66691-14MS	MS	07/14/21 12:47	MS210521-6	25.025	4.15	27.00554	mg/Kg	91	75	125			
L66691-14MSD	MSD	07/14/21 12:49	MS210521-6	25.025	4.15	26.93556	mg/Kg	91	75	125	0	20	

WG523327

WG523327ICV	ICV	07/15/21 16:49	MS210630-2	.05		.05093	mg/L	102	90	110			
WG523327ICB	ICB	07/15/21 16:51				U	mg/L		-0.0003	0.0003			
WG522807PBS	PBS	07/15/21 17:00				U	mg/Kg		-0.15	0.15			
WG522807LCSS2	LCSS	07/15/21 17:02	PCN63584	130		118.34716	mg/Kg		107	152			
WG522807LCSSD2	LCSSD	07/15/21 17:03	PCN63584	130		119.65858	mg/Kg		107	152	1	20	
L66691-14MS	MS	07/15/21 17:16	MS210521-6	25.025	4.2	27.75634	mg/Kg	94	75	125			
L66691-14MSD	MSD	07/15/21 17:18	MS210521-6	25.025	4.2	27.78526	mg/Kg	94	75	125	0	20	

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Magnesium (1312)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522455													
WG522455ICV	ICV	07/02/21 13:42	II210620-2	100		97.25	mg/L	97	90	110			
WG522455ICB	ICB	07/02/21 13:46				U	mg/L		-0.6	0.6			
WG522152PBS	PBS	07/02/21 14:10				U	mg/L		-0.6	0.6			
WG522152LFB1	LFB	07/02/21 14:14	II210622-2	50.00302		47.92	mg/L	96	80	120			
L66691-02MS	MS	07/02/21 14:25	II210622-2	50.00302	.85	48.68	mg/L	96	75	125			
L66691-02MSD	MSD	07/02/21 14:29	II210622-2	50.00302	.85	48.9	mg/L	96	75	125	0	20	
L66694-17DUP	DUP	07/02/21 15:16			.59	.56	mg/L				5	20	RA

WG522593

WG522593ICV	ICV	07/08/21 0:29	II210620-2	100		98.25	mg/L	98	90	110			
WG522593ICB	ICB	07/08/21 0:33				U	mg/L		-0.6	0.6			
WG522267PBS	PBS	07/08/21 0:56				U	mg/L		-0.6	0.6			
WG522267LFB1	LFB	07/08/21 1:00	II210622-2	50.00302		49.94	mg/L	100	80	120			
L66691-04MS	MS	07/08/21 1:08	II210622-2	50.00302	.46	50.22	mg/L	100	75	125			
L66691-04MSD	MSD	07/08/21 1:11	II210622-2	50.00302	.46	50.5	mg/L	100	75	125	1	20	
L66691-06DUP	DUP	07/08/21 1:23			.79	.72	mg/L				9	20	RA

WG523072

WG523072ICV	ICV	07/13/21 10:56	II210712-1	100		96.67	mg/L	97	90	110			
WG523072ICB	ICB	07/13/21 11:00				U	mg/L		-0.6	0.6			
WG522653PBS	PBS	07/13/21 11:24				U	mg/L		-0.6	0.6			
WG522653LFB1	LFB	07/13/21 11:28	II210708-3	50.00074		49.16	mg/L	98	80	120			
L66691-11MS	MS	07/13/21 11:36	II210708-3	50.00074	.21	48.21	mg/L	96	75	125			
L66691-11MSD	MSD	07/13/21 11:40	II210708-3	50.00074	.21	48.55	mg/L	97	75	125	1	20	
L66691-14DUP	DUP	07/13/21 11:55			.25	.23	mg/L				8	20	RA

Magnesium, total (3050)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522995													
WG522995ICV	ICV	07/12/21 22:04	II210712-1	100		97.1	mg/L	97	90	110			
WG522995ICB	ICB	07/12/21 22:07				U	mg/L		-0.6	0.6			
WG522807PBS	PBS	07/12/21 22:32				U	mg/Kg		-60	60			
WG522807LCSS2	LCSS	07/12/21 22:43	PCN63584	2320		2273	mg/Kg		1760	2880			
WG522807LCSSD2	LCSSD	07/12/21 22:47	PCN63584	2320		2250	mg/Kg		1760	2880	1	20	
L66691-03MS	MS	07/12/21 23:18	II210708-3	5050.07474	1280	5933.75	mg/Kg	92	75	125			
L66691-03MSD	MSD	07/12/21 23:22	II210708-3	5050.07474	1280	5972.13	mg/Kg	93	75	125	1	20	

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Manganese (1312)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522455													
WG522455ICV	ICV	07/02/21 13:42	II210620-2	2		1.966	mg/L	98	90	110			
WG522455ICB	ICB	07/02/21 13:46				U	mg/L		-0.03	0.03			
WG522152PBS	PBS	07/02/21 14:10				U	mg/L		-0.03	0.03			
WG522152LFB1	LFB	07/02/21 14:14	II210622-2	.5005		.48	mg/L	96	80	120			
L66691-02MS	MS	07/02/21 14:25	II210622-2	.5005	.097	.57	mg/L	95	75	125			
L66691-02MSD	MSD	07/02/21 14:29	II210622-2	.5005	.097	.574	mg/L	95	75	125	1	20	
L66694-17DUP	DUP	07/02/21 15:16			.017	.016	mg/L				6	20	RA

WG522593

WG522593ICV	ICV	07/08/21 0:29	II210620-2	2		1.959	mg/L	98	90	110			
WG522593ICB	ICB	07/08/21 0:33				U	mg/L		-0.03	0.03			
WG522267PBS	PBS	07/08/21 0:56				U	mg/L		-0.03	0.03			
WG522267LFB1	LFB	07/08/21 1:00	II210622-2	.5005		.484	mg/L	97	80	120			
L66691-04MS	MS	07/08/21 1:08	II210622-2	.5005	U	.504	mg/L	101	75	125			
L66691-04MSD	MSD	07/08/21 1:11	II210622-2	.5005	U	.503	mg/L	100	75	125	0	20	
L66691-06DUP	DUP	07/08/21 1:23			.012	.012	mg/L				0	20	RA

WG523072

WG523072ICV	ICV	07/13/21 10:56	II210712-1	2		1.941	mg/L	97	90	110			
WG523072ICB	ICB	07/13/21 11:00				U	mg/L		-0.03	0.03			
WG522653PBS	PBS	07/13/21 11:24				U	mg/L		-0.03	0.03			
WG522653LFB1	LFB	07/13/21 11:28	II210708-3	.5005		.508	mg/L	101	80	120			
L66691-11MS	MS	07/13/21 11:36	II210708-3	.5005	.012	.5	mg/L	98	75	125			
L66691-11MSD	MSD	07/13/21 11:40	II210708-3	.5005	.012	.505	mg/L	99	75	125	1	20	
L66691-14DUP	DUP	07/13/21 11:55			.013	.014	mg/L				7	20	RA

Manganese, total (3050)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522995													
WG522995ICV	ICV	07/12/21 22:04	II210712-1	2		1.953	mg/L	98	90	110			
WG522995ICB	ICB	07/12/21 22:07				U	mg/L		-0.03	0.03			
WG522807PBS	PBS	07/12/21 22:32				U	mg/Kg		-3	3			
WG522807LCSS2	LCSS	07/12/21 22:43	PCN63584	269		251	mg/Kg		221	317			
WG522807LCSSD2	LCSSD	07/12/21 22:47	PCN63584	269		266.3	mg/Kg		221	317	6	20	
L66691-03MS	MS	07/12/21 23:18	II210708-3	50.5505	130	164.63	mg/Kg	69	75	125			MA
L66691-03MSD	MSD	07/12/21 23:22	II210708-3	50.5505	130	169.983	mg/Kg	79	75	125	3	20	

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Mercury (1312)

M7470A CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522259													
WG522259ICV	ICV	07/02/21 13:17	HG210701-3	.00501		.005	mg/L	100	95	105			
WG522259ICB	ICB	07/02/21 13:18				U	mg/L		-0.0002	0.0002			
WG522380													
WG522380LFB	LFB	07/02/21 15:01	HG210701-6	.002002		.00189	mg/L	94	85	115			
WG522062PBS	PBS	07/02/21 15:02				U	mg/L		-0.0006	0.0006			
WG522062LFB1	LFB	07/02/21 15:03	HG210701-6	.002002		.00209	mg/L	104	85	115			
WG522152LFB1	LFB	07/02/21 15:18	HG210701-6	.002002		.00203	mg/L	101	85	115			
WG522152PBS	PBS	07/02/21 15:19				U	mg/L		-0.0006	0.0006			
WG522977													
WG522977ICV	ICV	07/13/21 9:17	HG210701-3	.00501		.00482	mg/L	96	90	110			
WG522977ICB	ICB	07/13/21 9:18				U	mg/L		-0.0006	0.0006			
WG522981													
WG522981LFB	LFB	07/13/21 9:39	HG210709-9	.002002		.00193	mg/L	96	85	115			
WG522152PBS	PBS	07/13/21 9:40				U	mg/L		-0.0006	0.0006			
WG522152LFB1	LFB	07/13/21 9:41	HG210701-6	.002002		.00175	mg/L	87	85	115			
WG522267LFB1	LFB	07/13/21 9:53	HG210709-9	.002002		.00178	mg/L	89	85	115			
WG522267PBS	PBS	07/13/21 9:54				U	mg/L		-0.0006	0.0006			
L66691-04MS	MS	07/13/21 9:56	HG210709-9	.002002	U	.0019	mg/L	95	85	115			
L66691-04MSD	MSD	07/13/21 9:57	HG210709-9	.002002	U	.00197	mg/L	98	85	115	4	20	
L66691-06DUP	DUP	07/13/21 10:00			U	U	mg/L				0	20	RA
WG522653PBS	PBS	07/13/21 10:06				U	mg/L		-0.0006	0.0006			
WG522653LFB1	LFB	07/13/21 10:07	HG210709-9	.002002		.00206	mg/L	103	85	115			
L66691-11MS	MS	07/13/21 10:09	HG210709-9	.002002	U	.00223	mg/L	111	85	115			
L66691-14DUP	DUP	07/13/21 10:15			U	U	mg/L				0	20	RA
L66691-02MS	MS	07/13/21 10:36	HG210709-9	.002002	.015	.01545	mg/L	22	85	115			M3
L66691-02MSD	MSD	07/13/21 10:37	HG210709-9	.002002	.015	.0165	mg/L	75	85	115	7	20	M3
L66691-17DUP	DUP	07/13/21 10:38			U	U	mg/L				0	20	RA

Mercury by Direct Combustion AA

M7473 CVAAS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG520390													
WG520390ICV4	ICV	06/04/21 12:43	HG210603-2	10000		10200	ng/g	102	90	110			
WG522102													
WG522102ICV1	ICV	06/30/21 10:37	HG210603-4	100		109	ng/g	109	90	110			
WG522102ICV2	ICV	06/30/21 10:44	HG210603-4	100		102	ng/g	102	90	110			
WG522102ICV3	ICV	06/30/21 10:51	HG210603-3	1000		1010	ng/g	101	90	110			
WG522102ICV4	ICV	06/30/21 10:58	HG210603-2	10000		10100	ng/g	101	90	110			
WG522102PBS	PBS	06/30/21 12:18				2.98	ng/g		-4.95	4.95			
WG522102LCSS	LCSS	06/30/21 12:27	PCN60050	90		85.8	ng/g		80	120			
WG522102LCSSD	LCSSD	06/30/21 12:36	PCN60050	90		86.8	ng/g		80	120	1	20	
L66691-03MS	MS	06/30/21 12:53	HG210603-3				ng/g	89	80	120			
L66691-04DUP	DUP	06/30/21 13:11			3.36	3.84	ng/g				13	20	RA

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Molybdenum (1312) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522455													
WG522455ICV	ICV	07/02/21 13:42	II210620-2	2		2.035	mg/L	102	90	110			
WG522455ICB	ICB	07/02/21 13:46				U	mg/L		-0.06	0.06			
WG522152PBS	PBS	07/02/21 14:10				U	mg/L		-0.06	0.06			
WG522152LFB1	LFB	07/02/21 14:14	II210622-2	.501		.488	mg/L	97	80	120			
L66691-02MS	MS	07/02/21 14:25	II210622-2	.501	U	.485	mg/L	97	75	125			
L66691-02MSD	MSD	07/02/21 14:29	II210622-2	.501	U	.494	mg/L	99	75	125	2	20	
L66694-17DUP	DUP	07/02/21 15:16			.032	.039	mg/L				20	20	RA
WG522593													
WG522593ICV	ICV	07/08/21 0:29	II210620-2	2		2.017	mg/L	101	90	110			
WG522593ICB	ICB	07/08/21 0:33				U	mg/L		-0.06	0.06			
WG522267PBS	PBS	07/08/21 0:56				U	mg/L		-0.06	0.06			
WG522267LFB1	LFB	07/08/21 1:00	II210622-2	.501		.505	mg/L	101	80	120			
L66691-04MS	MS	07/08/21 1:08	II210622-2	.501	U	.51	mg/L	102	75	125			
L66691-04MSD	MSD	07/08/21 1:11	II210622-2	.501	U	.506	mg/L	101	75	125	1	20	
L66691-06DUP	DUP	07/08/21 1:23			U	U	mg/L				0	20	RA
WG523072													
WG523072ICV	ICV	07/13/21 10:56	II210712-1	2		2	mg/L	100	90	110			
WG523072ICB	ICB	07/13/21 11:00				U	mg/L		-0.06	0.06			
WG522653PBS	PBS	07/13/21 11:24				U	mg/L		-0.06	0.06			
WG522653LFB1	LFB	07/13/21 11:28	II210708-3	.501		.505	mg/L	101	80	120			
L66691-11MS	MS	07/13/21 11:36	II210708-3	.501	U	.495	mg/L	99	75	125			
L66691-11MSD	MSD	07/13/21 11:40	II210708-3	.501	U	.496	mg/L	99	75	125	0	20	
L66691-14DUP	DUP	07/13/21 11:55			U	U	mg/L				0	20	RA

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Molybdenum, total (3050)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522995													
WG522995ICV	ICV	07/12/21 22:04	II210712-1	2		2.012	mg/L	101	90	110			
WG522995ICB	ICB	07/12/21 22:07				U	mg/L		-0.06	0.06			
WG522807PBS	PBS	07/12/21 22:32				U	mg/Kg		-6	6			
WG522807LCSS2	LCSS	07/12/21 22:43	PCN63584	95.4		93.23	mg/Kg		76.4	114			
WG522807LCSSD2	LCSSD	07/12/21 22:47	PCN63584	95.4		94.95	mg/Kg		76.4	114	2	20	
L66691-03MS	MS	07/12/21 23:18	II210708-3	50.601	U	48.965	mg/Kg	97	75	125			
L66691-03MSD	MSD	07/12/21 23:22	II210708-3	50.601	U	48.864	mg/Kg	97	75	125	0	20	
WG523068													
WG523068ICV	ICV	07/13/21 13:13	II210712-1	2		2.006	mg/L	100	90	110			
WG523068ICB	ICB	07/13/21 13:17				U	mg/L		-0.06	0.06			
WG522807PBS	PBS	07/13/21 13:41				U	mg/Kg		-6	6			
WG522807LCSS2	LCSS	07/13/21 13:53	PCN63584	95.4		94.36	mg/Kg		76.4	114			
WG522807LCSSD2	LCSSD	07/13/21 13:56	PCN63584	95.4		95.08	mg/Kg		76.4	114	1	20	
L66691-03MS	MS	07/13/21 14:27	II2XSOIL	50.298	U	51.348	mg/Kg	102	75	125			
L66691-03MSD	MSD	07/13/21 14:30	II2XSOIL	50.298	U	51.227	mg/Kg	102	75	125	0	20	
WG523141													
WG523141ICV	ICV	07/15/21 12:47	II210712-1	2		1.967	mg/L	98	90	110			
WG523141ICB	ICB	07/15/21 12:51				U	mg/L		-0.06	0.06			
WG522807PBS	PBS	07/15/21 13:14				U	mg/Kg		-6	6			
WG522807LCSS2	LCSS	07/15/21 13:18	PCN63584	95.4		89.51	mg/Kg		76.4	114			
WG522807LCSSD2	LCSSD	07/15/21 13:22	PCN63584	95.4		91.4	mg/Kg		76.4	114	2	20	
L66691-03MS	MS	07/15/21 13:36	II2XSOIL	50.298	U	50.278	mg/Kg	100	75	125			
L66691-03MSD	MSD	07/15/21 13:40	II2XSOIL	50.298	U	50.237	mg/Kg	100	75	125	0	20	

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nickel (1312)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522771													
WG522771ICV	ICV	07/08/21 17:12	MS210630-2	.05		.05089	mg/L	102	90	110			
WG522771ICB	ICB	07/08/21 17:14				U	mg/L		-0.0012	0.0012			
WG522152PBS	PBS	07/08/21 17:23				U	mg/L		-0.0012	0.0012			
WG522152LFB2	LFB	07/08/21 17:25	MS210702-2	.05		.05056	mg/L	101	80	120			
L66691-03MS	MS	07/08/21 17:32	MS210702-2	.05	.00045	.05029	mg/L	100	75	125			
L66691-03MSD	MSD	07/08/21 17:34	MS210702-2	.05	.00045	.05063	mg/L	100	75	125	1	20	
L66694-17DUP	DUP	07/08/21 17:54			U	U	mg/L				0	20	RA

WG522782

WG522782ICV	ICV	07/08/21 20:43	MS210630-2	.05		.05181	mg/L	104	90	110			
WG522782ICB	ICB	07/08/21 20:45				U	mg/L		-0.0012	0.0012			
WG522267PBS	PBS	07/08/21 20:55				U	mg/L		-0.0012	0.0012			
WG522267LFB2	LFB	07/08/21 20:57	MS210702-2	.05		.04989	mg/L	100	80	120			
L66691-05MS	MS	07/08/21 21:02	MS210702-2	.05	.00817	.04902	mg/L	82	75	125			
L66691-05MSD	MSD	07/08/21 21:04	MS210702-2	.05	.00817	.0497	mg/L	83	75	125	1	20	
L66691-06DUP	DUP	07/08/21 21:12			.00046	U	mg/L				200	20	RA

WG523021

WG523021ICV	ICV	07/12/21 20:00	MS210630-2	.05		.05007	mg/L	100	90	110			
WG523021ICB	ICB	07/12/21 20:01				U	mg/L		-0.0012	0.0012			
WG522653PBS	PBS	07/12/21 20:11				U	mg/L		-0.0012	0.0012			
WG522653LFB2	LFB	07/12/21 20:13	MS210702-2	.05		.05044	mg/L	101	80	120			
L66691-12MS	MS	07/12/21 20:18	MS210702-2	.05	.00044	.04967	mg/L	98	75	125			
L66691-12MSD	MSD	07/12/21 20:20	MS210702-2	.05	.00044	.0505	mg/L	100	75	125	2	20	
L66691-14DUP	DUP	07/12/21 20:29			.00058	.00057	mg/L				2	20	RA

Nickel, total (3050)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG523111													
WG523111ICV	ICV	07/14/21 11:59	MS210630-2	.05		.04727	mg/L	95	90	110			
WG523111ICB	ICB	07/14/21 12:01				U	mg/L		-0.0012	0.0012			
WG522807PBS	PBS	07/14/21 12:11				U	mg/Kg		-0.6	0.6			
WG522807LCSS2	LCSS	07/14/21 12:13	PCN63584	53.9		49.07089	mg/Kg		44.5	63.3			
WG522807LCSSD2	LCSSD	07/14/21 12:15	PCN63584	53.9		50.6107	mg/Kg		44.5	63.3	3	20	
L66691-14MS	MS	07/14/21 12:47	MS210521-6	25	2.29	23.34098	mg/Kg	84	75	125			
L66691-14MSD	MSD	07/14/21 12:49	MS210521-6	25	2.29	23.07918	mg/Kg	83	75	125	1	20	

pH, Saturated Paste

EPA 600/2-78-054 section 3.2.2

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG523136													
WG523136ICV	ICV	07/15/21 13:03	PCN63115	4.01		4	units	100	3.9	4.1			
L66691-04DUP	DUP	07/15/21 13:11			7.6	7.66	units				1	20	

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Selenium (1312)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522771													
WG522771ICV	ICV	07/08/21 17:12	MS210630-2	.05		.05048	mg/L	101	90	110			
WG522771ICB	ICB	07/08/21 17:14				U	mg/L		-0.0003	0.0003			
WG522152PBS	PBS	07/08/21 17:23				U	mg/L		-0.0003	0.0003			
WG522152LFB2	LFB	07/08/21 17:25	MS210702-2	.05		.05054	mg/L	101	80	120			
L66691-03MS	MS	07/08/21 17:32	MS210702-2	.05	U	.05081	mg/L	102	75	125			
L66691-03MSD	MSD	07/08/21 17:34	MS210702-2	.05	U	.05118	mg/L	102	75	125	1	20	
L66694-17DUP	DUP	07/08/21 17:54			.00134	.00148	mg/L				10	20	

WG522782

WG522782ICV	ICV	07/08/21 20:43	MS210630-2	.05		.05058	mg/L	101	90	110			
WG522782ICB	ICB	07/08/21 20:45				U	mg/L		-0.0003	0.0003			
WG522267PBS	PBS	07/08/21 20:55				U	mg/L		-0.0003	0.0003			
WG522267LFB2	LFB	07/08/21 20:57	MS210702-2	.05		.04948	mg/L	99	80	120			
L66691-05MS	MS	07/08/21 21:02	MS210702-2	.05	.00013	.05037	mg/L	100	75	125			
L66691-05MSD	MSD	07/08/21 21:04	MS210702-2	.05	.00013	.05097	mg/L	102	75	125	1	20	
L66691-06DUP	DUP	07/08/21 21:12			.00011	U	mg/L				200	20	RA

WG523021

WG523021ICV	ICV	07/12/21 20:00	MS210630-2	.05		.05021	mg/L	100	90	110			
WG523021ICB	ICB	07/12/21 20:01				.0001	mg/L		-0.0003	0.0003			
WG522653PBS	PBS	07/12/21 20:11				U	mg/L		-0.0003	0.0003			
WG522653LFB2	LFB	07/12/21 20:13	MS210702-2	.05		.05162	mg/L	103	80	120			
L66691-12MS	MS	07/12/21 20:18	MS210702-2	.05	U	.05144	mg/L	103	75	125			
L66691-12MSD	MSD	07/12/21 20:20	MS210702-2	.05	U	.05247	mg/L	105	75	125	2	20	
L66691-14DUP	DUP	07/12/21 20:29			.00011	U	mg/L				200	20	RA

Selenium, total (3050)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG523111													
WG523111ICV	ICV	07/14/21 11:59	MS210630-2	.05		.04895	mg/L	98	90	110			
WG523111ICB	ICB	07/14/21 12:01				U	mg/L		-0.0003	0.0003			
WG522807PBS	PBS	07/14/21 12:11				U	mg/Kg		-0.15	0.15			
WG522807LCSS2	LCSS	07/14/21 12:13	PCN63584	167		154.79029	mg/Kg		132	201			
WG522807LCSSD2	LCSSD	07/14/21 12:15	PCN63584	167		163.16811	mg/Kg		132	201	5	20	
L66691-14MS	MS	07/14/21 12:47	MS210521-6	12.5	.141	10.85757	mg/Kg	86	75	125			
L66691-14MSD	MSD	07/14/21 12:49	MS210521-6	12.5	.141	10.85306	mg/Kg	86	75	125	0	20	

WG523327

WG523327ICV	ICV	07/15/21 16:49	MS210630-2	.05		.05138	mg/L	103	90	110			
WG523327ICB	ICB	07/15/21 16:51				U	mg/L		-0.0003	0.0003			
WG522807PBS	PBS	07/15/21 17:00				.09217	mg/Kg		-0.15	0.15			
WG522807LCSS2	LCSS	07/15/21 17:02	PCN63584	167		155.95435	mg/Kg		132	201			
WG522807LCSSD2	LCSSD	07/15/21 17:03	PCN63584	167		156.85339	mg/Kg		132	201	1	20	
L66691-14MS	MS	07/15/21 17:16	MS210521-6	12.5	U	11.37381	mg/Kg	91	75	125			
L66691-14MSD	MSD	07/15/21 17:18	MS210521-6	12.5	U	11.23244	mg/Kg	90	75	125	1	20	

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Solids, Percent

D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG521915													
L66691-01DUP	DUP	06/25/21 13:14			99.5	99.4	%				0	20	
WG521915PBS	PBS	06/28/21 8:59				U	%		-0.1	0.1			

Sulfur, total

ASTM D-4239-85C, LECO Furnace

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522140													
WG522140PBS	PBS	06/30/21 9:30				U	%		-0.03	0.03			
WG522140LCSS	LCSS	06/30/21 9:33	PCN61786	4.01		3.42	%	85	80	120			
L66691-02MS	MS	06/30/21 9:42	PCN62544	1.3	1.66	2.93	%	98	80	120			
L66691-02DUP	DUP	06/30/21 9:45			1.66	1.68	%				1	20	

Thallium (1312)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522771													
WG522771ICV	ICV	07/08/21 17:12	MS210630-2	.05		.0519	mg/L	104	90	110			
WG522771ICB	ICB	07/08/21 17:14				U	mg/L		-0.0003	0.0003			
WG522152PBS	PBS	07/08/21 17:23				U	mg/L		-0.0003	0.0003			
WG522152LFB2	LFB	07/08/21 17:25	MS210702-2	.05		.04912	mg/L	98	80	120			
L66691-03MS	MS	07/08/21 17:32	MS210702-2	.05	U	.04871	mg/L	97	75	125			
L66691-03MSD	MSD	07/08/21 17:34	MS210702-2	.05	U	.04912	mg/L	98	75	125	1	20	
L66691-17DUP	DUP	07/08/21 17:54			U	U	mg/L				0	20	RA
WG522782													
WG522782ICV	ICV	07/08/21 20:43	MS210630-2	.05		.05143	mg/L	103	90	110			
WG522782ICB	ICB	07/08/21 20:45				U	mg/L		-0.0003	0.0003			
WG522267PBS	PBS	07/08/21 20:55				U	mg/L		-0.0003	0.0003			
WG522267LFB2	LFB	07/08/21 20:57	MS210702-2	.05		.04861	mg/L	97	80	120			
L66691-05MS	MS	07/08/21 21:02	MS210702-2	.05	U	.04902	mg/L	98	75	125			
L66691-05MSD	MSD	07/08/21 21:04	MS210702-2	.05	U	.04915	mg/L	98	75	125	0	20	
L66691-06DUP	DUP	07/08/21 21:12			U	U	mg/L				0	20	RA
WG523021													
WG523021ICV	ICV	07/12/21 20:00	MS210630-2	.05		.05143	mg/L	103	90	110			
WG523021ICB	ICB	07/12/21 20:01				U	mg/L		-0.0003	0.0003			
WG522653PBS	PBS	07/12/21 20:11				U	mg/L		-0.0003	0.0003			
WG522653LFB2	LFB	07/12/21 20:13	MS210702-2	.05		.05016	mg/L	100	80	120			
L66691-12MS	MS	07/12/21 20:18	MS210702-2	.05	U	.05021	mg/L	100	75	125			
L66691-12MSD	MSD	07/12/21 20:20	MS210702-2	.05	U	.05098	mg/L	102	75	125	2	20	
L66691-14DUP	DUP	07/12/21 20:29			U	U	mg/L				0	20	RA

Hudbay Minerals

ACZ Project ID: **L66691**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Thallium, total (3050)

M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG523111													
WG523111ICV	ICV	07/14/21 11:59	MS210630-2	.05		.05077	mg/L	102	90	110			
WG523111ICB	ICB	07/14/21 12:01				U	mg/L		-0.0003	0.0003			
WG522807PBS	PBS	07/14/21 12:11				U	mg/Kg		-0.15	0.15			
WG522807LCSS2	LCSS	07/14/21 12:13	PCN63584	112		110.47263	mg/Kg		90.3	133			
WG522807LCSSD2	LCSSD	07/14/21 12:15	PCN63584	112		109.34666	mg/Kg		90.3	133	1	20	
L66691-14MS	MS	07/14/21 12:47	MS210521-6	25	.0621	22.38756	mg/Kg	89	75	125			
L66691-14MSD	MSD	07/14/21 12:49	MS210521-6	25	.0621	22.86025	mg/Kg	91	75	125	2	20	

Zinc (1312)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522455													
WG522455ICV	ICV	07/02/21 13:42	II210620-2	2		1.996	mg/L	100	90	110			
WG522455ICB	ICB	07/02/21 13:46				U	mg/L		-0.06	0.06			
WG522152PBS	PBS	07/02/21 14:10				U	mg/L		-0.06	0.06			
WG522152LFB1	LFB	07/02/21 14:14	II210622-2	.50075		.492	mg/L	98	80	120			
L66691-02MS	MS	07/02/21 14:25	II210622-2	.50075	1.43	1.893	mg/L	92	75	125			
L66691-02MSD	MSD	07/02/21 14:29	II210622-2	.50075	1.43	1.9	mg/L	94	75	125	0	20	
L66694-17DUP	DUP	07/02/21 15:16			U	U	mg/L				0	20	RA
WG522579													
WG522579ICV	ICV	07/07/21 22:55	II210620-2	2		2.019	mg/L	101	90	110			
WG522579ICB	ICB	07/07/21 22:58				U	mg/L		-0.06	0.06			
WG522152PBS	PBS	07/07/21 23:22				U	mg/L		-0.06	0.06			
WG522152LFB1	LFB	07/07/21 23:26	II210622-2	.50075		.504	mg/L	101	80	120			
L66691-02MS	MS	07/07/21 23:37	II210622-2	.50075	1.45	1.958	mg/L	105	75	125			
L66691-02MSD	MSD	07/07/21 23:40	II210622-2	.50075	1.45	1.923	mg/L	98	75	125	2	20	
L66694-17DUP	DUP	07/07/21 23:55			U	U	mg/L				0	20	RA
WG522593													
WG522593ICV	ICV	07/08/21 0:29	II210620-2	2		2.014	mg/L	101	90	110			
WG522593ICB	ICB	07/08/21 0:33				U	mg/L		-0.06	0.06			
WG522267PBS	PBS	07/08/21 0:56				U	mg/L		-0.06	0.06			
WG522267LFB1	LFB	07/08/21 1:00	II210622-2	.50075		.518	mg/L	103	80	120			
L66691-04MS	MS	07/08/21 1:08	II210622-2	.50075	U	.516	mg/L	103	75	125			
L66691-04MSD	MSD	07/08/21 1:11	II210622-2	.50075	U	.524	mg/L	105	75	125	2	20	
L66691-06DUP	DUP	07/08/21 1:23			U	U	mg/L				0	20	RA
WG523072													
WG523072ICV	ICV	07/13/21 10:56	II210712-1	2		1.926	mg/L	96	90	110			
WG523072ICB	ICB	07/13/21 11:00				U	mg/L		-0.06	0.06			
WG522653PBS	PBS	07/13/21 11:24				.156	mg/L		-0.06	0.06			BF
WG522653LFB1	LFB	07/13/21 11:28	II210708-3	.50045		.564	mg/L	113	80	120			
L66691-11MS	MS	07/13/21 11:36	II210708-3	.50045	U	.508	mg/L	102	75	125			
L66691-11MSD	MSD	07/13/21 11:40	II210708-3	.50045	U	.509	mg/L	102	75	125	0	20	
L66691-14DUP	DUP	07/13/21 11:55			U	U	mg/L				0	20	RA

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NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Zinc, total (3050)

M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG522995													
WG522995ICV	ICV	07/12/21 22:04	II210712-1	2		1.947	mg/L	97	90	110			
WG522995ICB	ICB	07/12/21 22:07				U	mg/L		-0.06	0.06			
WG522807PBS	PBS	07/12/21 22:32				U	mg/Kg		-6	6			
WG522807LCSS2	LCSS	07/12/21 22:43	PCN63584	158		150.5	mg/Kg		128	188			
WG522807LCSSD2	LCSSD	07/12/21 22:47	PCN63584	158		151	mg/Kg		128	188	0	20	
L66691-03MS	MS	07/12/21 23:18	II210708-3	50.54545	15.4	63.468	mg/Kg	95	75	125			
L66691-03MSD	MSD	07/12/21 23:22	II210708-3	50.54545	15.4	62.337	mg/Kg	93	75	125	2	20	
WG523068													
WG523068ICV	ICV	07/13/21 13:13	II210712-1	2		1.947	mg/L	97	90	110			
WG523068ICB	ICB	07/13/21 13:17				U	mg/L		-0.06	0.06			
WG522807PBS	PBS	07/13/21 13:41				U	mg/Kg		-6	6			
WG522807LCSS2	LCSS	07/13/21 13:53	PCN63584	158		151.6	mg/Kg		128	188			
WG522807LCSSD2	LCSSD	07/13/21 13:56	PCN63584	158		151.2	mg/Kg		128	188	0	20	
L66691-03MS	MS	07/13/21 14:27	II2XSOIL	50.57575	16.5	66.014	mg/Kg	98	75	125			
L66691-03MSD	MSD	07/13/21 14:30	II2XSOIL	50.57575	16.5	64.64	mg/Kg	96	75	125	2	20	

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-01	WG522455	Aluminum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522817	Antimony (1312)	M6020B ICP-MS	D1	Sample required dilution due to matrix.
			M6020B ICP-MS	D2	Sample required dilution. Target analyte exceeded calibration range.
			M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523327	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522771	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522817	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG522455	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522817	Lead (1312)	M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG522455	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG522981	Mercury (1312)	M7470A CVA	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					or LFB) was acceptable.
			M7470A CVAA	Q6	Sample was received above recommended temperature.
			M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522455	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522771	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522771	Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522579	Zinc (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-02	WG522455	Aluminum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522771	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523327	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522771	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522771	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522455	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522817	Lead (1312)	M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG522455	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG522380	Mercury (1312)	M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522455	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522771	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522771	Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522455	Zinc (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-03	WG522455	Aluminum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522771	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523327	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522771	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522771	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523068	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG522771	Copper (1312)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522455	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522817	Lead (1312)	M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG522455	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M7470A CVAA	Q6	Sample was received above recommended temperature.
			M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522455	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522771	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522771	Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522455	Zinc (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-04	WG522593	Aluminum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523068	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG522817	Copper (1312)	M6020B ICP-MS	B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
			M6020B ICP-MS	N1	See Case Narrative.
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522817	Lead (1312)	M6020B ICP-MS	B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
			M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG522593	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA M7470A CVAA	Q6 RA	Sample was received above recommended temperature. Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS M7473 CVAAS	Q6 RA	Sample was received above recommended temperature. Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522782	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Zinc (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ Project ID: **L66691**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-05	WG522593	Aluminum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG522817	Copper (1312)	M6020B ICP-MS	B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
			M6020B ICP-MS	N1	See Case Narrative.
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Lead (1312)	M6020B ICP-MS	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
			M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Manganese (1312)	M6010D ICP	RA	sample is too low for accurate evaluation (< 10x MDL). Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA M7470A CVAA	Q6 RA	Sample was received above recommended temperature. Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS M7473 CVAAS	Q6 RA	Sample was received above recommended temperature. Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522782	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Zinc (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-06	WG522593	Aluminum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG522817	Copper (1312)	M6020B ICP-MS	B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
			M6020B ICP-MS	N1	See Case Narrative.
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Lead (1312)	M6020B ICP-MS	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
			M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Manganese (1312)	M6010D ICP	RA	sample is too low for accurate evaluation (< 10x MDL). Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA M7470A CVAA	Q6 RA	Sample was received above recommended temperature. Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS M7473 CVAAS	Q6 RA	Sample was received above recommended temperature. Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522782	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Zinc (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-07	WG522593	Aluminum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG522817	Copper (1312)	M6020B ICP-MS	B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
			M6020B ICP-MS	N1	See Case Narrative.
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Lead (1312)	M6020B ICP-MS	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
			M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Manganese (1312)	M6010D ICP	RA	sample is too low for accurate evaluation (< 10x MDL). Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA M7470A CVAA	Q6 RA	Sample was received above recommended temperature. Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS M7473 CVAAS	Q6 RA	Sample was received above recommended temperature. Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522782	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Zinc (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-08	WG522593	Aluminum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG522817	Copper (1312)	M6020B ICP-MS	B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
			M6020B ICP-MS	N1	See Case Narrative.
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Lead (1312)	M6020B ICP-MS	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
			M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Manganese (1312)	M6010D ICP	RA	sample is too low for accurate evaluation (< 10x MDL). Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA M7470A CVAA	Q6 RA	Sample was received above recommended temperature. Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS M7473 CVAAS	Q6 RA	Sample was received above recommended temperature. Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522782	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Zinc (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ Project ID: **L66691**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-09	WG522593	Aluminum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG522817	Copper (1312)	M6020B ICP-MS	B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
			M6020B ICP-MS	N1	See Case Narrative.
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522817	Lead (1312)	M6020B ICP-MS	B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
			M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA	Q6	Sample was received above recommended temperature.
			M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522782	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Zinc (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ Project ID: **L66691**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-10	WG522593	Aluminum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522782	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG522817	Copper (1312)	M6020B ICP-MS	B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
			M6020B ICP-MS	N1	See Case Narrative.
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522817	Lead (1312)	M6020B ICP-MS	B1	Target analyte detected in prep / method blank at or above the method reporting limit. See Case Narrative.
			M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG522593	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ Project ID: **L66691**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA	Q6	Sample was received above recommended temperature.
			M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522782	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522782	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522593	Zinc (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ Project ID: **L66691**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-11	WG523072	Aluminum (1312)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG523021	Copper (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Lead (1312)	M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA	Q6	Sample was received above recommended temperature.
			M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523021	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Zinc (1312)	M6010D ICP	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ Project ID: **L66691**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-12	WG523072	Aluminum (1312)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG523021	Copper (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Lead (1312)	M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA	Q6	Sample was received above recommended temperature.
			M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523021	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Zinc (1312)	M6010D ICP	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-13	WG523072	Aluminum (1312)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG523021	Copper (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Lead (1312)	M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA	Q6	Sample was received above recommended temperature.
			M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523021	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Zinc (1312)	M6010D ICP	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-14	WG523072	Aluminum (1312)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG523021	Copper (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Lead (1312)	M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA	Q6	Sample was received above recommended temperature.
			M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523021	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Zinc (1312)	M6010D ICP	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-15	WG523072	Aluminum (1312)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG523021	Copper (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Lead (1312)	M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA	Q6	Sample was received above recommended temperature.
			M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523021	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Zinc (1312)	M6010D ICP	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L66691-16	WG523072	Aluminum (1312)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG522995	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Antimony (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Arsenic (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Arsenic, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Cadmium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Calcium, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG522136	Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
			ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	Q6	Sample was received above recommended temperature.
			ASA No. 9 29-2.2.4 (calc TC - TOC)	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	Q6	Sample was received above recommended temperature.
		Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			ASA No.9 29-2.2.4 Combustion/IR	ZQ	Analyte was not evaluated in the laboratory control standard. Either the analyte is not included in the scope of the analytical method or a commercial standard containing the analyte is not available.
	WG523021	Copper (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Copper, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Iron (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG523021	Lead (1312)	M6020B ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG523111	Lead, total (3050)	M6020B ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG523072	Magnesium (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Manganese (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522995	Manganese, total (3050)	M6010D ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					acceptance limits.
	WG522981	Mercury (1312)	M7470A CVAA	Q6	Sample was received above recommended temperature.
			M7470A CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG522102	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Molybdenum (1312)	M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523021	Nickel (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523111	Nickel, total (3050)	M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG523021	Selenium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Thallium (1312)	M6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG523072	Zinc (1312)	M6010D ICP	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Hudbay Minerals

ACZ Project ID: **L66691**

Metals Analysis

The following parameters are not offered for certification or are not covered by AZ certificate #AZ0102.

Selenium (1312)	M6020B ICP-MS
Selenium, total (3050)	M6020B ICP-MS

Soil Analysis

The following parameters are not offered for certification or are not covered by AZ certificate #AZ0102.

Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR
Conductivity @25C	SM2510B
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2
Solids, Percent	D2216-80
Sulfur, total	ASTM D-4239-85C, LECO Furnace

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR
Conductivity @25C	SM2510B
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2
Solids, Percent	D2216-80
Sulfur, total	ASTM D-4239-85C, LECO Furnace

Hudbay Minerals

ACZ Project ID: L66691

Date Received: 06/23/2021 15:36

Received By:

Date Printed: 6/24/2021

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
NA35314	22.7	NA	15	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

Hudbay Minerals

ACZ Project ID: L66691

Date Received: 06/23/2021 15:36

Received By:

Date Printed: 6/24/2021

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Laboratories, Inc. L66691

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: Holly Beggy
Company: Hudbay Minerals
E-mail: holly.beggy@hudsonminerals.com

Address: 5255 E. Williams Circle, Suite 1065
Telephone: 520-343-5174

Copy of Report to:

Name: David Krizek
Company: david.krizek@hudsonminerals.com

E-mail: 5255 E. Williams Circle, Suite 1065
Telephone: 520-495-3527

Invoice to:

Name: Lionelyn Garcia
Company: Hudbay Minerals
E-mail: rosemontinvoices@hudsonminerals.com

Address: 5255 E. Williams Circle, Suite 1065
Telephone: 520-495-3545

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES ☒
NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring?

Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Corey Archer Sampler's Site Information State AZ Zip code 85629 Time Zone AZ

*Sampler's Signature: [Signature]

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: 2021-SOILS

PO#:

Reporting state for compliance testing: No

Check box if samples include NRC licensed material? ☐

SAMPLE IDENTIFICATION			DATE:TIME	Matrix	# of Containers	Drainage-1 (Under Plant)	Drainage 1-2-3-4	Ina Road WWTP-Soil	Plant Tissue						
D2-S1			6/4/21 : 7:15am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-S2			6/4/21 : 7:47am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-1			6/4/21 : 6:36am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-2			6/4/21 : 6:13am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-3			6/4/21 : 8:29am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-4			6/4/21 : 8:38am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-5			6/4/21 : 8:47am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-6			6/4/21 : 8:55am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-7			6/4/21 : 9:05am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-8			6/4/21 : 9:19am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Samples have been sieved to 4mm with a #5 sieve.

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:		DATE:TIME	RECEIVED BY:		DATE:TIME
Corey Archer	[Signature]	6/4/21 : 12:05	Holly Beggy	[Signature]	6/4/21 : 12:05
Holly Beggy	[Signature]	6/21/21, 2:40pm			

FRMAD050.06.14.14

White - Return with sample. Yellow - Retain for your records.

L66691 Chain of Custody



Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Holly Beggy
Company: Huidbay Minerals
E-mail: holly.beggy@huidbayminerals.com

Address: 5255 E. Williams Circle, Suite 1065
Telephone: 520-343-5174

Copy of Report to:

Name: David Krizek
Company: david.krizek@huidbayminerals.com

E-mail: 5255 E. Williams Circle, Suite 1065
Telephone: 520-495-3527

Invoice to:

Name: Lionelyn Garcia
Company: Huidbay Minerals
E-mail: rosemontinvoices@huidbayminerals.com

Address: 5255 E. Williams Circle, Suite 1065
Telephone: 520-495-3545

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES ☒
NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring?

Yes ☐

No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Corey Arner Sampler's Site Information State AZ Zip code 85629 Time Zone AZ

*Sampler's Signature:

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: 2021-SOILS

PO#:

Reporting state for compliance testing: No

Check box if samples include NRC licensed material? ☐

SAMPLE IDENTIFICATION			DATE:TIME	Matrix	# of Containers	Drainage-1 (Under Plant)	Drainage 1-2-3-4	Ina Road WWTP-Soil	Plant Tissue								
D2-10			6/9/21 : 12:09pm	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-11			6/9/21 : 8:09am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-12			6/9/21 : 6:49am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-14			6/9/21 : 9:18am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-15			6/9/21 : 10:30am	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D2-22			6/9/21 : 12:09pm	SO	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Samples have been sieved to 4mm with a #5 sieve.

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

Corey Arner 6/9/21 3:05
Holly Beggy 6/21/21 2:46pm
Holly Beggy Holly Beggy 6/21/21 3:05pm

FRMAD050.06.14.14

White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Quote

Holly Beggy
Hudbay Minerals
5255 E Williams Circle Suite W1065
Tucson, AZ 85711

Page 4 of 10

6/17/2021

Quote Number: DRAINAGE-2-3-4

Matrix: Soil

Drainages 2, 3 & 4: 96 samples: SPLP, TIC, TS, 3050 Metals, Paste PH & EC

Parameter	Method	Detection Limit	Cost/Sample
Diskette/QC Summary			
Quality Control Summary			\$0.00
Inorganic Prep			
Total Hot Plate Digestion	M3010A ICP		\$0.00
Total Hot Plate Digestion	M3010A ICP-MS		\$0.00
Metals Analysis			
Aluminum (1312)	M6010D ICP	0.05 mg/L	\$7.50
Aluminum, total (3050)	M6010D ICP	5 mg/Kg	\$7.50
Antimony (1312)	M6020B ICP-MS	0.0004 mg/L	\$12.00
Antimony, total (3050)	M6020B ICP-MS	0.2 mg/Kg	\$12.00
Arsenic (1312)	M6020B ICP-MS	0.0002 mg/L	\$12.00
Arsenic, total (3050)	M6020B ICP-MS	0.1 mg/Kg	\$12.00
Cadmium (1312)	M6020B ICP-MS	0.00005 mg/L	\$12.00
Cadmium, total (3050)	M6020B ICP-MS	0.025 mg/Kg	\$12.00
Calcium (1312)	M6010D ICP	0.1 mg/L	\$7.50
Calcium, total (3050)	M6010D ICP	10 mg/Kg	\$7.50
Copper (1312)	M6020B ICP-MS	0.0008 mg/L	\$12.00
Copper, total (3050)	M6020B ICP-MS	0.4 mg/Kg	\$12.00
Iron (1312)	M6010D ICP	0.06 mg/L	\$7.50
Iron, total (3050)	M6010D ICP	6 mg/Kg	\$7.50
Lead (1312)	M6020B ICP-MS	0.0001 mg/L	\$12.00
Lead, total (3050)	M6020B ICP-MS	0.05 mg/Kg	\$12.00
Magnesium (1312)	M6010D ICP	0.2 mg/L	\$7.50
Magnesium, total (3050)	M6010D ICP	20 mg/Kg	\$7.50
Manganese (1312)	M6010D ICP	0.01 mg/L	\$7.50
Manganese, total (3050)	M6010D ICP	1 mg/Kg	\$7.50
Mercury (1312)	M7470A CVAA	0.0002 mg/L	\$20.00
Mercury by Direct Combustion AA	M7473 CVAAS	2 ng/g	\$19.50
Molybdenum (1312)	M6010D ICP	0.02 mg/L	\$7.50
Molybdenum, total (3050)	M6010D ICP	2 mg/Kg	\$7.50
Nickel (1312)	M6020B ICP-MS	0.0004 mg/L	\$12.00
Nickel, total (3050)	M6020B ICP-MS	0.2 mg/Kg	\$12.00
Selenium (1312)	M6020B ICP-MS	0.0001 mg/L	\$12.00
Selenium, total (3050)	M6020B ICP-MS	0.05 mg/Kg	\$12.00
Thallium (1312)	M6020B ICP-MS	0.0001 mg/L	\$12.00

REPAD.09.06.05.01

S/ tjv D/ 21 P/

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Quote

Holly Beggy
Hudbay Minerals
5255 E Williams Circle Suite W1065
Tucson, AZ 85711

Page 5 of 10
6/17/2021

Thallium, total (3050)	M6020B ICP-MS	0.05 mg/Kg	\$12.00
Zinc (1312)	M6010D ICP	0.02 mg/L	\$7.50
Zinc, total (3050)	M6010D ICP	2 mg/Kg	\$7.50
Misc.			
Electronic Data Deliverable			\$0.00
Sample Preparation			
Air Dry at 34 Degrees C	USDA No. 1, 1972		\$6.25
Digestion - Hot Plate	M3050B ICP		\$12.75
Digestion - Hot Plate	M3050B ICP-MS		\$0.00
Saturated Paste Extraction	USDA No. 60 (2)		\$13.00
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2		\$9.25
Synthetic Precip. Leaching Procedure	M1312		\$58.00
Soil Analysis			
Carbon, total (TC)	ASA No.9 29-2.2.4 Combustion/IR	0.1 %	\$14.00
Carbon, total inorganic (TIC)	ASA No. 9 29-2.2.4 (calc TC - TOC)	0.1 %	\$0.00
Carbon, total organic (TOC)	ASA No.9 29-2.2.4 Combustion/IR	0.1 %	\$22.00
Conductivity @25C	SM2510B	0.001 mmhos/cm	\$6.25
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2	0.1 units	\$6.25
Solids, Percent	D2216-80	0.1 %	\$6.25
Sulfur, total	ASTM D-4239-85C, LECO Furnace	0.01 %	\$14.00
Cost/Sample:			\$504.50

This quote is based on a Standard Turn Around Time of approximately 21 days for soil and solid matrices (15 business days). TAT may vary with seasonal heavy workload. Please contact your PM if rush TAT is required. Rush TAT needs to be pre-approved prior to sample shipment to assure that due dates can be met. Pricing includes standard reporting formats and standard ACZ EDDs. All projects received are subject to a \$150.00 Minimum Charge. Please note that method detection limits are estimates and may be elevated depending on sample matrix that require dilution. Pricing includes coolers, soil jars or bags, labels, COCs and ice-packs (if needed for your analysis), shipped to your site or office via UPS ground. Return shipping is the responsibility of the client. Please allow ample time for your bottles to arrive. Please note that soil preparation charges may change based on the condition and volume of sample(s) upon receipt. Wet samples may increase the TAT if air-drying is needed required.

REPAD.09.06.05.01

S/ tjv D/ 21 P/